# THE physiotherapy REVIEW

28-29

Physical Medicine in Hospital Program—BARRETT

Normal and Scoliotic Spine—TARR

Patient-Therapist Relationship—WELLES

Physical Therapy in Children's Hospital

Physical Therapy in Crippled Children Schools

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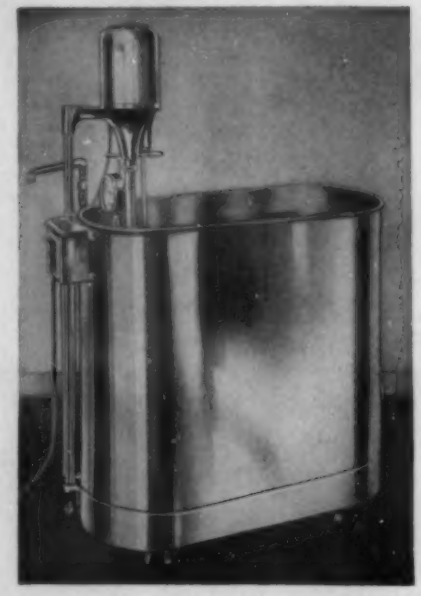

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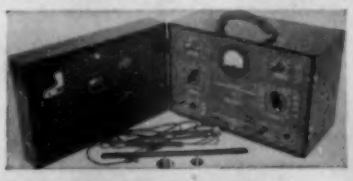

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No. 1

# The Physiotherapy Review

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**Volume 28** **JANUARY-FEBRUARY 1948** **Number 1**

## Coordination and Integration of Physical Medicine in a Hospital Program

**Thomas F. Barrett, M. D.**

Medical rehabilitation, as we know it today, is a broad and far-reaching form of medical treatment, and makes available to the physician the combined and coordinated skills and technics of the physical therapist, occupational therapist, corrective physical rehabilitation specialist, and an educator is added in hospitals of the Veterans Administration, Army and Navy.

The skills and technics of these specialists are coordinated and integrated with the medical care of the patient in such a way as to give the patient the most complete form of medical treatment possible. It is difficult to understand medical rehabilitation if we do not know what each one of these sections does and how all the specialized units are coordinated and integrated into the hospital medical program.

The medical rehabilitation service in the Veterans Administration hospitals is composed of two sections: (1) physical medicine, and (2) educational retraining and manual arts therapy. The physical medicine section is composed of physical therapy, occupational therapy and corrective physical rehabilitation. This section is directly concerned with the care and treatment of the patient and its activities are referred to as the third phase of medicine. The educational and manual arts therapy section covers academic and shop retraining units, which apply all the latest teaching technics and skills in teaching and training the patients.

The purpose of this section as a part of medical care of patients often is misunderstood because many people look upon it as a formal program of education with the same purpose and objectives as found in our regular school systems. This is not true. The primary objective and purpose of this unit as a part of the medical rehabilitation program in our hospitals is to give the patient a new form of constructive psychotherapy by establishing a practical, motivating, educational or shop retraining activity that will be practical and useful for him when he is discharged from the hospital. It also provides the medical staff and the personnel of physical medicine with clinical information that will enable them to determine and compare the patient's ability to apply himself mentally and physically and see how well he adjusts himself in an economic field with whatever physical or mental disability he may have. If the disease or injury leaves him with a chronic or permanent disability, he can be retrained by the physical medicine section and taught a useful trade or occupation that will be compatible with his disability and give him a means of becoming independent.

The primary purpose of this section in a hospital program is to give the patient a form of constructive psychotherapy and, at the same time, furnish the medical staff with information that will be useful to them in determining the man's ability to adjust himself to his diability. The value of the educational retraining is important, but the patient's discharge from the hospital by his physician is never delayed in order that a patient may complete an educational project.

To have a clear understanding of the medical rehabilitation program and how physical medi-

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Read before the American Physiotherapy Association conference, Asilomar, Calif., July 1947.

cine fits into this coordinated scheme, it is necessary that there be a clear understanding between the various groups as to just what their responsibilities and functions are and their relationship to other sections in their department. Their activities must be coordinated with each other in applying their specialized technics to the individual therapeutic problems of the patient. This must be done so that there will be no misunderstanding between any of the sections in physical medicine regarding the extent of their responsibility in applying and coordinating their therapeutic program into the over-all medical care for the patient. Experience has proven that if some rules are not established, a series of duplicating therapeutic activities will develop in two or more sections within the same department; this situation confuses other members in the medical staff who are responsible for the diagnosis and treatment of the patient and, in turn, is reflected upon the over-all efficiency and care of the patient. The physician in charge of the patient will become reluctant to prescribe this therapy when it is not clear to him who is going to be responsible for it.

To overcome this difficulty, the general scope of responsibility of each section for treating and handling the patients is controlled by defining the activities of each section in this manner:

1. The physical therapy section directs all its attention and treatment to the injured or diseased parts of the body and those parts closely related to the activities of that part of the body which is injured or diseased. It is responsible for the application of all the special skills and technics required of its personnel to fulfil the physician's individual prescription for his patient.

2. Corrective physical rehabilitation directs all its attention to the part of the body not involved by the disease or injury and, by using such special technics as graduated physical exercises to maintain muscular tone, prevent the deconditioning process from setting in, to develop physical reeducation, permitting maximum utilization of the undamaged muscular structure, and to develop therapeutic adaptive games and sports that will at the same time develop the maximum reeducation of muscles required to compensate for, or overcome the use of, those lost because of the disease or injury. The activities of the unit must be coordinated with those of physical therapy to attain maximum benefits for the patient.

3. The occupational therapy section directs its attention to the injured or diseased part of the body, also, but the end results are accomplished by approaching the disabled or diseased part in a different way. The patient is given a mental motivation to use the injured part by stimulating his interest in making some object that will require him to use the injured part. This approach allows more relaxation of the muscles and tendons which motivate and control the movement of the injured part by diverting the patient's attention to the object he is making rather than the injured or diseased part of the body itself, and thereby releases conscious guarding and splinting on the part of the patient. This section also directs another form of treatment which is most frequently applied to mental cases but also has an important place in treating general medical and surgical patients and those suffering from chronic debilitating diseases; in these cases the patients are given a mental stimulus to make or produce something, which in turn diverts the patient's attention to the object he is making and away from himself and his illness or disability, thereby achieving a diversional therapeutic result.

The therapeutic activities of the three sections of physical medicine must be carefully planned and coordinated with each other so as to give the physician responsible for the medical care of the patient a simple, well organized form of physical and mental therapy that will be useful to him in effecting the best possible clinical care for his patient. To do this most effectively, the coordinated therapeutic activities of these three sections must reach the patients when it is clinically indicated and medically safe to treat them; here again experience has taught that the best therapeutic results are obtained if the patients are treated early. To do this, the treatment must be brought to the patient when he needs it and not wait until the patient can come to a clinic. In the Veterans Administration hospitals at San Francisco this has been accomplished successfully in this way: The Department of Physical Medicine is divided into two units—a ward unit or section, and a clinic unit or section. The ward section is divided into teams and each team is made up of a physical therapist, occupational therapist and a corrective physical rehabilitation specialist. These teams are assigned to the physician in charge of the ward or service where they will be working. The teams so assigned work with the same physicians and in the same wards continuously, and develop their therapeutic program for the patients under the direct supervision of the physician in charge.

The teams are assigned to various sections or services in the hospital such as general surgery,

orthopedic surgery, neurosurgery, thoracic surgery, general medicine, cardiovascular. The service to which they are assigned depends upon the number of patients and clinical indications for physical medicine on that service, and the size of the hospital. In a small hospital the ward teams will cover many services, whereas in a larger hospital they will be confined to two or more surgical or medical sections.

The therapists assigned to the clinic sections operate their clinics in the same way that all clinics are conducted. This arrangement has been in operation in two of our general medical and surgical hospitals for about six months now, and the results have been very gratifying. The comments coming from these hospitals indicate that the physicians are not burdened with writing specific prescriptions for each patient on their wards, but that they and the therapists are developing a coordinated therapeutic program together; the therapists are becoming more clinical-minded in their approach to the patient and are treating the patient with a better insight into the pathological process involved instead of applying their therapeutic activities mechanically.

The physician and the therapist have a better understanding of what the other can do for the patient; the therapist has a better opportunity to confer with the physician and suggest various therapeutic technics with which he may not be familiar. The physician, in turn, is becoming better informed as to what the therapist in physical medicine has to offer him in treating his patients and is applying the information earlier with better results. As a result of this relationship between the ward units of physical medicine and the physician, the patient receives better and more effective treatment, ambulant patients are transferred to the clinic units sooner, thereby getting the patients off the wards at an earlier date, and, also giving a better and more progressive follow-up without loss of time or benefit to the patient. The treatment of our patients is a continuous one that starts shortly after the patient is admitted to the ward and continues progressively until he is discharged from the hospital. If further treatment is necessary, it will be continued in the physical therapy section of the Regional Offices.

By coordinating and combining the therapeutic activities of physical medicine with the diagnostic activities of the physician and that of the educational and manual arts therapy section of medical rehabilitation, all our treatment is directed to the patient as an individual and not a diseased entity.

The clinical results of this approach justify its continuance, because in the hospitals where it has been in operation for the past six months, postoperative cases are sitting up within two to four hours, getting out of bed in two to four days, and being discharged from the hospital in seven to ten days. Postoperative complications such as thrombophlebitis, pulmonary embolism and static pneumonitis have been practically eliminated. Medical cases like rheumatoid arthritis and peripheral vascular diseases are being treated earlier and more effectively, and the physicians who are working with these units are becoming more familiar with what they have to offer them for their patients. Physical medicine is being prescribed sooner for more patients, thereby placing greater responsibility and importance upon the therapeutic value of physical medicine.

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## CHANGE OF ADDRESS

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# Analysis of Normal and Scoliotic Spine:

## *With Implications for Therapeutic Exercise*

### Part II

**Irene Tarr**

A review of spinal mechanics together with an outline of pathological changes accompanying a "typical" structural scoliosis were outlined in Part I of this paper.[1] General objectives of treatment were suggested. The following material will deal with specific treatment procedures. Exercises given are primarily applicable to either a right thoracic or a right thoracic left lumbar curve in which the thoracic deviation is the more marked.

It would be impracticable here to give an extensive list of exercises for the many varieties of spinal curvatures encountered. The problem of the physical therapist is to determine in each case by a thorough check which muscle groups have tended to shorten with the deformity and should be stretched and which muscles must be strengthened to hold the corrected position. In treatment basic principles of muscle training and good body mechanics should be followed. The mechanics of lateral flexion in the spinal regions should be kept in mind particularly; that is, hyperextension in the thoracic area and flexion in the lumbar area limits lateral motion.

Manipulation or passive stretching usually is indicated in the treatment of scoliosis for the purpose of relaxing or preventing muscle shortening. Stretching must be accompanied by development of adequate muscle strength to hold the corrected position, as increased flexibility without proper muscular support may result in more marked curvature.

A primary principle of treatment stressed in the following exercises is: *derotation of the thoracic area by upper trunk twisting to the convexity of the thoracic curve.* That is, with a right thoracic structural curve the head and shoulders are turned to the right. With regard to this subject of thoracic derotation, it may be of interest to review briefly the analysis given by Truslow[2] based on the mechanism described by Mackenzie Forbes[3] (Fig. 1).

2852 Motor Ave., Los Angeles 34, Calif.

This material has been adapted from a Master's Thesis, submitted to the Division of Physical Therapy, Stanford University, September 1945.

Taking a cross section of the thorax at the level of the fifth thoracic vertebra, Truslow divides it into a series of four levers: (1) the right rib; (2) the fifth thoracic vertebra; (3) the left rib, and (4) the sternum.

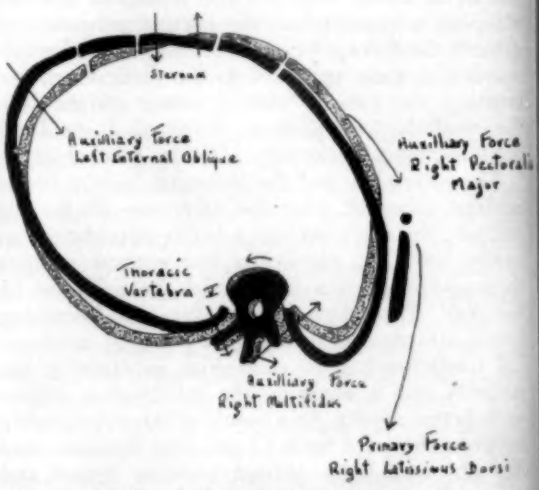


*Figure 1. Theory of derotation of ribs and vertebrae by posterior upper trunk twist on the side of the prominence. (Redrawn from Truslow[4].)*

According to this theory, the initiating force in an upper trunk twist to the right is brought about by the right latissimus dorsi, which by virtue of concentric contraction exerts a bowstring pressure on the posterior thorax and thus pushes the right rib forward. As the rib attaches on the side of the vertebral body and the anterior surface of the transverse process, its motion turns the vertebral body to the left and the spinous process to the right. This and an auxiliary force supplied the pectoralis major acting on its origin from its humeral insertion help to pull the rib forward.

The anterior pull of the right rib on the vertebra constitutes the initial force for the vertebral body or the second lever. Here, according to

Truslow, the auxiliary force is due to the right multifidus and rotator muscles. With the spinous process going to the right and the body going to the left, the left transverse process is therefore brought backward. Because of its vertebral attachment, the left rib, which is the third lever, is pushed posteriorly. This tends to fill out the depression on the concavity of the curve and to lessen the left anterior thoracic bulge. An auxiliary force in the action of the left rib is the pull of the left internal oblique muscle, which acts on the lower part of the anterior chest wall, transmitting power through the intercostal muscles.

The sternum acts as a pivot, the left side going backward and the right side forward. It thus becomes the "adjusting factor" which eases the strain of the other three levers and yet continues the chain of the quadruple lever system of the thorax.

Trunk rotation may be illustrated by shoulder rolls to the right and left. The roll to the right (Fig. 2), which elevates the right side of the thorax posteriorly, shows filling out in the left thoracic area and decrease of the rib prominence on the right side. The forward right shoulder is brought into adduction. Reaching upward and toward the right with the left arm helps to stretch the concave side of the curve. The shoulder roll to the left (Fig. 3) shows apparent increase in the rib prominence on the right side of the thorax and increased depression of the left side. In view of these changes the right shoulder roll is recommended.

The following therapeutic procedures are directed toward stretching the concavity of the curve and balancing the spine. May it be stated again that these exercises and manipulations are designed principally for the correction of a right dorsal structural curvature. They need only to be reversed for the opposite type.

### RIGHT SHOULDER ROLL

The patient stabilizes the pelvis by contracting the gluteus maximus and stretches both arms above the head slightly to the right. The patient then shifts the apex of the curve to the left and rolls the trunk to the right, leading with the right shoulder. In the case of a right thoracic left lumbar curvature, strapping the patient with sufficient padding over the lumbar area would prevent increased lateral movement in this area and help to localize the activity in the thoracic area.

*Purpose:*

1. Derotation of the thoracic area with decrease of the thoracic asymmetry.
2. Stretching of the thoracic region on the concavity of the curve.
3 Correction of the deviation by active shift to the left.
4. Elevation of the low left shoulder.
5. Expansion of the left thorax posteriorly.
6. Adduction and depression of the right scapula.

### BODY ROLLING WITH SHOULDER LEAD

This exercise is begun in the prone position with the arms and legs completely extended. The thoracic spine is shifted toward the midline. Leading with the right shoulder and arm, the patient then twists his upper trunk to the right and slowly pulls the whole body over (with pro-

*Figure 2. Shoulder roll to the right.*

*Figure 3. Shoulder roll to the left.*

*Figure 4. Right shoulder roll.*

gressive muscle contraction from the shoulder downward) until he is in the supine position. From this position the roll then proceeds with the opposite shoulder leading until the body is again in the prone position. This may be continued the full length of the floor. The thoracic shift is emphasized throughout the exercise.

*Purpose (in addition to points given above for shoulder roll):*

1. Strengthening of the spinal and abdominal musculature.
2. Increase of spinal flexibility.

*Figure 5. Body rolling with shoulder lead.*

### BOBBING

The patient assumes the long sitting position with the legs extended and abducted and the feet at right angles against the wall. The apex of the thoracic curve is shifted to the left. He then reaches with the left hand toward the right toes and bobs forward, at the same time extending the right arm backward and to the right. The shift is maintained and intensified during the exercise. As the lumbar spine is in a forward flexed position and thus is locked against lateral flexion,[5] most of the motion takes place in the thoracic region.

*Purpose:*

1. Thoracic derotation.
2. Forcible stretching of the concavity of the thoracic curve.
3. Adduction of the right scapula and stretch of the right pectoral musculature.

*Figure 6. Bobbing.*

### BREATHING EXERCISES

Breathing exercises are effective in the treatment of scoliosis to prevent distortion of the thorax and help maintain flexibility. Structural changes may limit the area in which the lungs function. For this reason an effort is made to expand and lift the rib cage to allow for adequate vital capacity. The following exercises are suggested:

For symmetrical expansion of the rib cage:

1. In the supine position the patient inhales, starting motion just below the ribs. After filling the lungs to capacity, he elevates the diaphragm, holding the rib cage at maximum expansion for a few seconds and exhales slowly from the region below upward.

For asymmetrical expansion of the rib cage:

1. With the subject in the supine position pressure is given by the physical therapist on the patient over the anterior prominence of the thorax while the patient inhales, taking in as much air as possible in the lung of the depressed side. The lower ribs on the flattened side may be elevated manually by the patient to assist in this exercise. An active shift of the rib cage toward the side of the concavity of the curve followed by "one-lung breathing" may also prove helpful.
2. With the patient in prone position, a small pad may be placed under the anterior prominence of the thorax to prevent excursion of the ribs in this area. The patient again attempts to fill the opposite lung (Fig. 4).

*Purpose:*

1. Expansion of the rib cage to increase the area available for normal breathing.
2. Helping in prevention of further deformity of the rib cage.

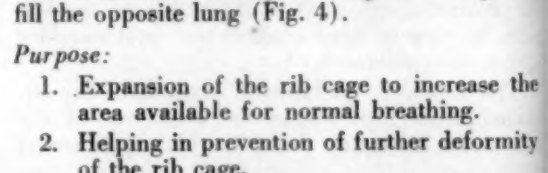

*Figure 7. Breathing with pressure on the anterior thoracic prominence.*

### MANIPULATION OF THE SPINE

Although only one manipulation is illustrated here, it describes the type of stretching suggested for correction of a right thoracic curve. The patient lies prone with the trunk off the end of the table. He supports his trunk with his arms on a small bench at the foot of the table while the pelvic region is securely strapped. The patient then puts the hands behind the neck and the therapist laterally flexes the spine to the right

and raises the right shoulder. Gravity helps to increase the stretch and to reverse the thoracic curve. This manipulation is quite severe and should be used only with patients whose musculature has been sufficiently well developed to maintain a corrected position as mobility of the spine may be considerably increased.

*Figure 8. Manipulation.*

## REST POSITION

Various rest positions which tend to stretch the region on the concavity of both lateral curves may be assumed. This position is shown in Figure 7 as a corrective measure for an uncompensated right thoracic curve. In this subject the development of a lumbar curve is being encouraged. The patient extends the left arm overhead and toward the right corner of the table. The right arm is flexed and held close to the thorax. The right fist may be placed beneath the right shoulder to help offset the abduction and forward tilting of the scapula on that side. The right leg is flexed under the left and the pelvis rests on the right side. The leg hangs over the edge of the table to put increased stretch on the left lumbar area.

When used with a compound curvature, the rest position is changed. The arm and leg are extended on the side of the concavity of the thoracic and lumbar curves. That is, the left arm and right leg would be stretched out in case of a right thoracic-left lumbar curve, and the head would be turned to the right.

The value of Klapp creeping[6] in its various forms should not be overlooked. This type of exercise was designed for the purpose of mobilizing and strengthening the back muscles. The problem of maintaining balance of superincumbent weight is eliminated in the creeping position. When the trunk is horizontal, the muscle tonus normally required to maintain the erect position is unnecessary.

The specific exercises given are only illustrative of various approaches, i.e. active stretching (shift, derotation, etc.), manual manipulation, breathing exercises and rest positions. Together with these, standing and walking exercises to help maintain a well balanced upright position should be given. An effort should be made to balance the 7th cervical vertebra over the center of the sacrum.



*Figure 9. Rest position in which the region on the concavity of the right thoracic curve is put on mild stretch.*

## SUMMARY

The exercise treatment of scoliosis is an important orthopedic problem which has received relatively little emphasis in the past. This study of normal and pathological spines, with suggestion for corrective procedures, presents an outline for the use of therapeutic exercise and manipulation in the treatment of spinal curvatures.

Mechanics of the spine have been discussed together with anatomical structures controlling spinal motion. Although the deformities accompanying structural scoliosis sometimes vary from the usual pattern, most cases are found to conform to a rather uniform picture. However, exercises and stretching must be adapted to the particular needs of each individual case.

In treatment of curvatures it is important that an increase in flexibility following stretching be accompanied by sufficient strengthening of the supporting muscles to hold the improved position. Otherwise, with increased mobility the deviation may become more marked.

As the curve progresses over a period of time, muscles and ligaments tend to adjust to a new resting length. This causes shortening and contracture on the concavity and elongation and stretching on the convexity which hamper correction. The bones also gradually change their shape becoming deformed in accordance with the prolonged change in stress (Wolff's Law).[7] Therefore, if a curvature can be treated in its early stages, before the structural changes become marked, there is a better chance for arrest or correction of the curve.

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## Exhibits Available

*Posters*

1. Set of two, entitled "Physical Therapy Procedures," each containing eight black and white photographs of physical therapy activities.

2. Set of two on "Posture." Good and poor postural positions are shown, together with exercises for correction of faulty posture.

3. Poster exhibiting reprints available in the physical therapy field.

4. Album photographs of "Posture" showing corrective exercises.

5. Two posters, with color prints, the first showing "General Physical Therapy Procedures," and the second, "Detailed Early Exercise Technics."

*Slides*

1. Set of 38: "Physical Therapy Procedures." Title slides are included in the group.

2. "Course Content in Physical Therapy"—18 slides showing material covered in physical therapy training. Especially suitable for talks to student groups.

A script describing the slides is included with the slides.

*Album*

Photographs of physical therapy procedures.

The slides and procedures album may be borrowed from the National Office of the American Physiotherapy Association, 1790 Broadway, New York 19, N. Y. All other requests and correspondence regarding exhibits should be directed to Maxine Schuldt, Exhibits Chairman, 1680 Mission Street, San Francisco, California.

### THE PHYSIOTHERAPY REVIEW—Change in Price

**Effective May 1, 1947, the price of a year's subscription to THE PHYSIOTHERAPY REVIEW was raised to $4.00 in the United States; $4.50 outside the United States. Single copies are now 75c. Send your subscription to THE PHYSIOTHERAPY REVIEW, 4741 North Paulina Street, Chicago 40, Ill. Changes in address also should be sent to this office.**

# Some Psychiatric Factors in the Patient–Therapist Relationship

**Carlotta Welles, O.T.R.**

With the present trend in medicine toward the psychosomatic approach, which emphasizes the treatment of the patient as a whole, the therapist is considering how she can best develop her technics along the same line. It is recognized that such factors as size and frequency of dose, whether it be medication, diathermy or bicycle saw, are not all which must be considered in giving a treatment if the patient is to show maximum improvement as a result. If the patient vigorously dislikes the technician, if the child shrieks with fear when lowered into the pool, if Mrs. Jones sees no value in her treatment, the results will not be satisfactory despite the technical skill and modern equipment used. This is equally true if he is so filled with problems, worries and frustrations that treatment is merely another misunderstood burden which he must accept. Therefore, the purpose of this paper is to discuss some of the other factors, those things which relate to how the therapist goes about giving a treatment, or in other words, the building of the therapeutic relationship.

This term need not mean the establishment of a transference or dabbling with technics best used by psychiatrists. Therapists are not psychiatrists. Most patients, however, never can hope to be seen by the present number of these overworked specialists. It has become the responsibility of the general practitioner and the regular specialist to understand not only the clinical diagnosis but the neuropsychiatric picture of the patient.

The therapist must use the same approach. The technician who merely turns on a machine or applies a sling suspension is denying the patient enthusiasm, hope, purpose, self-esteem, friendship, all of which he may need a great deal more than the treatment she is giving him, if he is to become a well adjusted, successful individual. The tremendous importance and validity of the therapeutic relationship cannot be denied.

204 E. Mendocino St., Altadena, Calif.

Read before the American Physiotherapy Association conference, Asilomar, Calif., July 1947.

For purposes of discussion, the term "therapist" will be construed to mean the physical therapist, the occupational therapist, the nurse, the recreation worker and anyone who, by virtue of professional training, is concerned with the care and treatment of the sick.

The first responsibility of anyone building a therapeutic relationship is to do her utmost to understand the patient. She must be thoroughly familiar with his diagnosis and clinical picture and know the etiology of his condition. She must be aware of his attitude toward his illness or disability. How a patient feels about himself and his physical and social environment is the key to his readjustment. She must sense the presence of anxiety, the central dynamic theme in psychiatry. Does the patient, psychologically speaking, need this disability? Is he depending on it now to justify his inadequate adjustment? If the disability is alleviated, will he be more or less well adjusted than before? Are there factors in his family life or in his vocational adjustment which must receive attention before he can recover? We are all familiar with the wife who has a convenient heart attack or burns her hand on the stove when the husband seems to be spending an unjustified amount of time away from home. The heart or the hand must be cared for, but to treat these conditions apart from the whole situation would solve little of the problem. A significant number of cases of psychiatric syndromes simulate organic disease. All too many of these are treated by purely physical means and the psychogenic origin of symptoms often is neither understood nor considered. Clearly our first responsibility is to understand the patient, his clinical picture, his needs, his goals and his frustrations. A desire on the part of some physicians and therapists to do something definite and specific accounts for considerable surgery, prescription of drugs, physical therapy and so forth, following which very little improvement can be noted.

As the therapist deepens her understanding there are definite devices she can employ in

building the therapeutic relationship. She should help the patient to understand the purpose of his treatment, how it will be given, and what he may do to cooperate. Too often the technician is just another uniform bearing assorted needles, pills and exercises to the patient making his weary round of physicians' offices, hospitals and clinics. A patient said recently, "That heat and whirlpool doesn't do me any good. What I need is electricity!" Time spent in understanding this woman disclosed that she was worried about her son in another hospital. She was helped to develop a constructive attitude toward her son and was given more insight into the rationale of her own treatment, with the result that she became more cooperative in taking her treatment and better adjusted to her own situation. The therapeutic relationship in this case was adequate to solve a simple psychiatric problem and it cannot be argued that she should have been seen by a psychiatrist. In occupational therapy, it is particularly difficult to help the patient to understand his treatment. The outpatient who says, "I can do that at home," must be challenged and shown that he cannot. The retired business man who says, "But I never did that sort of thing! I'm all washed up. There's nothing left for me to do," will not make a satisfactory recovery unless the therapist can discover some of his deepest drives and convince him that by actively participating in his treatment, he can still be useful on some level.

Beyond assisting the patient to understand and thus accept his treatment, the therapist can help him to understand his physician. Many patients emerge from the physician's office with the required pills and prescriptions but appear as psychological wrecks in the therapist's treatment room. Their comments are familiar to all technicians: "He didn't even examine me;" "I had to wait three hours, then he didn't tell me anything;" "The doctor got mad at me and said there was nothing the matter with me;" "He examined my heart. Do I have heart disease?" Then the physician orders tests, X-rays and treatments which the patient cannot afford. This is only the beginning of all the troubles which the patient is so ready to tell the therapist but may not have told the physician. Her responsibility is not a simple one and only through close cooperation with the physician and other members of the medical team can she hope to guide the thoughts and feelings of her patient. She may discover that the patient has said nothing to the physician of his problems and symptoms. The physician will welcome the comments of the technician who must often serve as a catalytic agent between physician and patient.

As the therapeutic relationship deepens between patient and therapist, she may use it to help him to understand and accept himself to the point where it is possible for him to look forward toward assuming his responsibilities. Here one must be practical. A patient may not be able to return to his former occupation yet may continue to be useful to society, to his family and to himself. It will be a great satisfaction to a patient to actually see if he can do what he must do at home, such as feeding and dressing himself, likewise to a housewife to know that she can continue to care for her family. The therapist who includes a patient's daily activities as a part of her treatment program will contribute immeasurably toward the total readjustment of the patient.

Thus it is obvious that one of the best tools of the therapist, if she is to contribute to the total rehabilitation of the patient through the therapeutic relationship, is her own personality. If she is to use it well, she must understand herself. Just as the carpenter must know all the characteristics of his tools, so must the technician who wants to exert a positive influence in the progress of her patients understand how various attributes of her personality affect other people.

There are many more psychiatric aspects to the patient-therapist relationship which may be developed and used according to the interest and experience of the therapist. It seems safe to conclude, however, that only by making greater effort to understand our patients and ourselves; by helping the patient to understand and accept his treatment, his physician and himself, and then by helping him to understand and assume his place in society, we will be making our best contribution toward the goal of the medical team, the physical, vocational, social and psychological rehabilitation of the patient.

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# Physical Therapy Section:

## *Its Scope and Employment Opportunities*

**Part IV***

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# Physical Therapy in a Children's Hospital

Physical therapy is of major importance in the treatment of many diseases and disabilities affecting children. Outstanding examples are cerebral palsy and poliomyelitis, both of which may require long periods of intensive muscle training. Exercise therapy is becoming more widely used in selected cases of rheumatic heart disease and tuberculosis, of high incidence among children. Many orthopedic disabilities are amenable to physical therapy procedures, including those peculiar to the growth period. For the individual who knows and understands children the opportunity of working in a children's hospital is particularly appealing.

Children's hospitals usually are located only in the larger cities where specialization in hospital facilities is possible. These institutions commonly serve as training centers for nurses, medical students, and physical and occupational therapists. Children of twelve or fourteen years of age and under usually are eligible for admission, although there may be some exceptions to the age limit. Any race, creed, color and economic status is acceptable and practically every variety of childhood disease or disability will be found under treatment at one time or another.

Unfortunate children have an appeal for the general public and children's hospitals often are aided in various ways by groups of public spirited persons. Local women's organizations frequently are very helpful in sponsoring projects for the hospital. Special entertainment for children may be provided on the wards by service clubs or others. Children undergoing long periods of hospitalization often are able to join scout troops or other youth groups which are of benefit in giving the child outside interests and in keeping him busy. The entire organization and function of the hospital is geared to the special needs and interests of children.

Although the physical therapy department may deal entirely with children this does not greatly limit the variety of cases because youngsters are subject to nearly all the diseases and orthopedic disabilities common to adults in which physical therapy is indicated. Staff physicians include members of practically all medical specialities who refer patients to the department for treatment. The physical therapist in a hospital usually may attend clinics held by the physician, accompany him on rounds and consult with him regarding patients he has sent in for treatment. In this way she may be fully informed regarding the patient's condition, and confusion regarding prescription and treatment may be eliminated.

The arrangement of the physical therapy department ordinarily is similar to that in most general hospitals. The gymnasium is an important part of the area. It should have ample space and be equipped with apparatus for teaching balance, walking and posture as these are commonly important parts of the treatment program. Long wall mirrors and three-way posture mirrors, graduated steps and stationary and movable walkers are desirable. Special apparatus for teaching locomotion in the treatment of cerebral palsy should be included. In addition to the usual physical therapy equipment a variety of toys should be on hand such as building sets of all kinds, doll buggies and complete doll out-

*Acknowledgment:* Material for these articles was contributed by the following: *Alice V. Gantzer,* B.A., Physical Therapist for the School System, San Francisco, Calif.; *Betty Rice,* Physical Therapist, Children's Hospital, Oakland, Calif., *Susan Roen,* Supervisor of Physical Therapy Department, Orthopaedic Hospital, Los Angeles, Calif., and *Esther Snell,* Teaching Fellow, Stanford University, Calif.

fits, educational toys and possibly tricycles and kiddie cars. Children who are too young to appreciate the purpose of exercises may be given directed play activities to accomplish the objectives of treatment.

A pool or tank for giving underwater exercise is of great value in a variety of cases. The tank room or the enclosed pool should have air conditioning if possible to regulate the temperature and humidity for maximum efficiency. The slope of the pool should be graded to provide proper depth for walking practice for all age groups. Most pools are equipped with walking bars which are adjustable.

A number of children's hospitals have large out-patient departments, while others have none. A hospital with a large out-patient load necessarily requires a much larger physical therapy department. The space must be so arranged that in-patients and out-patients may be kept separated for treatments and do not mingle in order to avoid the possible spreading of common infections from out-patient children to the hospitalized children. Parents often accompany the children who come in from the outside for treatment. It is a good idea to encourage their interest as much as possible to see that they understand thoroughly what the physical therapist is trying to accomplish. Often exercises must be carried on at home between visits and it is the responsibility of the parent to see not only that these are done regularly but that they are carried out correctly. Exercises must be taught both to the child and to someone who is competent to work with him. The best efforts of the physical therapist may be wasted if the parent is not in sympathy with her work, as the child will be guided by the attitude of his family.

In some hospitals many bedside treatments are given. For convenience extra equipment may be kept in the wards or on the floors—for example, a portable ultraviolet lamp, one or two heat lamps, walkers and possible hot pack equipment. If exercises which require concentration over a period of time must be done a nearby treatment room should be available in order to avoid the noise and confusion of the ward.

Occasionally a number of children may be given treatment together, as in ultraviolet irradiation if space is provided for this purpose. Sometimes out-patients coming to the gymnasium for certain types of posture exercises are taken in small groups, particularly after they have become familiar with their exercises. Working with other children often provides an incentive and makes the treatment period more interesting. The child may learn a great deal from observation of others.

It is important that the physical therapy department be closely integrated with occupational therapy and located nearby if possible. The physical therapist should be in constant contact with medical and nursing staff members, medical social service personnel, the teacher and the speech therapist. She should be familiar with all phases of the child's daily life in order to contribute all she can toward assuring his optimum physical recovery.

If working with children is of particular interest to the trained physical therapist she should find the program of a children's hospital department very enjoyable as there is endless variety in the types of patients treated. The physical therapist in this situation has an excellent opportunity to contribute to the health and welfare of her patients at an early age when correction of deformity and restoration of maximum function is so vitally important for the future growth and development of the child.

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# Physical Therapy in Schools for Crippled Children

Physical therapy in the special school is a phase of crippled children's work which is particularly important. Here it is possible for the physical therapist to carry on treatment at regular intervals and in addition to help supervise the child's activity throughout the school day and, to some degree, at home. She has a much greater opportunity for observing the child and for helping to direct his total program than the physical therapist in the hospital or physician's office who sees her patients only for short intervals.

Schools for crippled children are designed primarily for those so physically handicapped that it would be inadvisable or impossible for them to attend a school where they must com-

pete with normal children. As a rule these schools are a part of the public school system and follow the same academic curriculum. In addition the school program often includes special speech classes, physical therapy, occupational therapy and a daily rest period for each child. Most schools cover the first eight grades, although some include also junior and senior high school grades. Recently the trend has been to include preschool classes also. Schools vary in size from those in which the enrollment is very small to those which are equipped to handle several hundred pupils. Therefore, the number of physical therapists may vary. The physical therapist may be a civil service employee, she may be employed by the Board of Health, by the Board of Education, by a private club or agency, or she may be from the staff of a nearby hospital. Usually, if the school is a part of the public school system, she is employed by the Board of Education with the same pay scale as that of teachers in the local system.

The hours of work correspond to the regular school day which in most cities throughout the country is from 8:30 A.M. to 3:00 P.M. or from 9:00 A.M. to 3:30 P.M., Monday through Friday. Transportation is provided for the children by a school bus or by taxi service.

Before admission each child is given a thorough examination covering medical, neurological, orthopedic and psychological aspects to determine his eligibility. An orthopedic consultant examines the children in the school periodically and it is usually the duty of the physical therapist to organize these clinics and to assist with them.

As a rule patients from virtually every orthopedic physician in the community are in attendance. Some children may be under the care of private physicians who are not orthopedic specialists. Treatment prescribed by the physician is sent in on special forms which are filed with the patient's progress notes. These orders must be renewed periodically. Occasionally, well-meaning parents attempt to prevail upon the physician to write orders for physical therapy when the child's condition has reached maximum improvement possible under this form of treatment. This should be discouraged as it not only tends to discredit the value of physical therapy but prevents the therapist from spending valuable time with patients who can be expected to benefit from her aid.

Often a number of children referred to crippled children's schools have received treatment from individuals not recognized by the medical profession or have had no care whatsoever. This offers a challenge to the physical therapist to educate the parents regarding the value of good physical treatment and to convince them that cooperation with the efforts being made at the school toward the child's improvement is essential.

The most important phase of the entire school program is the child's treatment period which takes precedence over all other activities. The treatment area usually is equipped with plinths, mats, infra-red and mercury quartz lamps, as well as walking bars, graduated steps, mirrors and other exercise training apparatus. Many schools have a pool or Hubbard tank for underwater exercise.

Ordinarily about one-third of the school's total enrollment is referred for physical therapy. Although types of cases vary from time to time the distribution, on order of occurrence, often is as follows: postpoliomyelitis, cerebral palsy, cardiac disturbances, bone and joint tuberculosis; miscellaneous conditions include osteomyelitis, rheumatoid arthritis, fractures, dislocations and congenital anomalies. In short, practically all children's diseases having a long convalescent period or resulting in residual disability may be found in the special school.

As the physical therapist is concerned with the child's total program she must cooperate closely with others dealing with him throughout the day. Frequent conferences with the physician, the parents, teachers and other school personnel are important in order that objectives of treatment may be carried out in the classroom, on the playground and at home. She must frequently explain the importance of such factors as desk and chair height, special supports and adapted apparatus, as well as correct sitting, standing and walking and other functional activities. Above all she must aid in teaching the child to be self-sufficient and urge him to help himself in every possible way. This will assist him in achieving a healthy and positive attitude toward his disability.

In summary, the school for crippled children offers an excellent opportunity for the close coordination of physical therapy, occupational therapy, speech training and recreational therapy. As the crippled child's primary objective is maximum use and development of his physical powers, the physical therapist plays a most important part in his training.

For the physical therapist with enthusiasm, ingenuity and above all a love for children, working in a school for crippled children is stimulating, challenging and very satisfying.

## Reprints Available

The following informational brochures and articles on physical therapy and the Association are available without charge from:

**American Physiotherapy Association, 1790 Broadway, New York 19, N. Y.**

PHYSICAL THERAPY, A SERVICE AND A CAREER
An illustrated brochure, describing the opportunities for a career in physical therapy, available scholarships and educational requirements for entering a school of physical therapy. (Made available through National Foundation for Infantile Paralysis funds.)

OUR ASSOCIATION
An informational booklet on the activities, scope and services of the American Physiotherapy Association.

PHYSICAL THERAPY
A question and answer article covering the usual queries received on physical therapy.

PHYSICAL THERAPY—*Suggestions for Prospective Students.*
Outlines the preprofessional course of study for college students preparing for physical therapy.

PERSONNEL POLICIES FOR QUALIFIED PHYSICAL THERAPISTS
Suggestions as to salary, hours, vacations, etc., by the American Physiotherapy Association.

ETHICS FOR THE PHYSICAL THERAPIST: *From the Point of View of the Medical Practitioner.*
HELEN HARDENBERGH, M.D.

APPROVED SCHOOLS OF PHYSICAL THERAPY
A list of schools approved by the Council on Medical Education and Hospitals of the American Medical Association.

THE PRESCRIPTION OF PHYSICAL THERAPY
JESSIE WRIGHT, M.D.

A small charge for the following scientific reprints is made as indicated to cover costs. Members of the American Physiotherapy Association, students in the approved schools and medical libraries will be provided upon request with one free copy of each reprint except the *History of Physical Therapy* and the *Anterior Poliomyelitis Issue.*

CARE OF PATIENTS WITH INFANTILE PARALYSIS: *Correlation in the Nursing and Physical Therapy Services.*
CARMELITA CALDERWOOD HEARST. ( 5c)

TRAUMATIC CEREBRAL PALSY.
EDNA M. BLUMENTHAL. (15c)

METHODS OF TREATMENT FOR THE CEREBRAL PALSIED.
ROBERTINE ST. JAMES. (10c)

PHYSICAL THERAPY IN ORTHOPEDICS: *With Special Reference to Heavy Resistance, Low Repetition Exercise Program.*
DOROTHY G. HOAG. ( 5c)

PHYSICAL THERAPY AND CHEST SURGERY.
FLORENCE S. LINDUFF. (10c)

POSTNATAL TREATMENT WITH MASSAGE AND EXERCISES.
NINA KELLGREN. ( 5c)

PHYSICAL THERAPY IN TREATING PERIPHERAL VASCULAR DISEASES: *With Particular Emphasis on Trench Foot.*
GEORGIANA WINDHAM. ( 5c)

PHYSICAL THERAPY IN THE TREATMENT OF NEUROSURGICAL CONDITIONS: *With Special Reference to New Electrodiagnostic Measures.*
EDNA L. DILLON. (10c)

PHYSICAL THERAPY MANAGEMENT OF LOWER EXTREMITY AMPUTEES.
PAIGE WEAVER. (10c)

WALKING TRAINING OF THE AMPUTEE: *Some Biochemical Considerations.*
SIGNE BRUNNSTROM. (10c)

PRESENT TRENDS IN PHYSICAL MEDICINE.
GEORGE MORRIS PIERSOL, M.D. ( 5c)

THE PHYSIOTHERAPY REVIEW—*Special Anterior Poliomyelitis Issue.* July-August 1947 (75c)
The magazine contains 11 articles by leading physicians and physical therapists on research and treatment of polio. There are 16 abstracts of articles on polio from current medical journals.

A HISTORY OF THE AMERICAN PHYSIOTHERAPY ASSOCIATION.
IDA M. HAZENHYER. (50c)
An account of the Association's activities and growth from 1921-1946.

**Institute for Crippled and Disabled, 400 First Ave., New York 10, N. Y.:**

THE CHALLENGE OF CRUTCHES (60c)
GEORGE D. DEAVER, M.D., and MARY ELEANOR BROWN, M.A.

## Schools Approved for Training Physical Therapists

*By Council on Medical Education and Hospitals of the American Medical Association*

| Name and Location of School | Medical Director | Technical Director | Entrance Requirements* | Length in Months | Classes Start | Tuition | Certificate, Degree, Diploma |
|---|---|---|---|---|---|---|---|
| Children's Hospital, Los Angeles[1] | Samuel S. Mathews | Sarah S. Rogers | a-b-d | 14 | Sept | $200 | Cert. or Degree |
| College of Medical Evangelists, Los Angeles[1] | F. B. Moor | A. H. Carlson | a-b-c-d | 12 | Sept | $225 | Cert. or Degree |
| University of Southern California, Los Angeles | O. L. Huddleston | Charlotte W. Anderson | a-b-d[3] | 12 | Sept | $496 | Cert. or Degree |
| University of California Medical School, San Francisco[1] | Frances Baker | Margery Wagner | d-e | 12 | Sept | $220[4] | Cert. or Degree |
| Stanford University, Stanford University, Calif.[1] | Wm. Northway | Lucille Daniels | a-b-d[3] | 12 | Jan June | $523.30 | Cert. or Degree |
| University of Colorado Medical Center, Denver | Harold Dinken | Mary Lawrence | a-b-d | 12 | Jan | $300 | Cert. or Degree |
| Northwestern University Medical School, Chicago | John S. Coulter | Gertrude Beard | a-b-d | 12 | Oct | $300 | Certificate |
| State University of Iowa Medical School, Iowa City | W. D. Paul | Olive C. Farr | e | 12 | Sept | $299 | Certificate |
| University of Kansas School of Medicine, Kansas City, Kans. | Donald L. Rose | Lilyan G. Warner & Ruth Monteith | a-b-c[2] | 12 | FebSept | $80[4] | Cert. or Degree |
| Bouve-Boston School of Physical Education, Boston | Howard Moore | Constance K. Greene | H.S. | 36 | Sept | $500 yr. | Degree |
| Simmons College, Boston | Wm. T. Green<br>Arthur L. Watkins | Janet B. Merrill | a-b-d | 16-36 | Sept | $550 | Cert. or Degree |
| Boston University College of Physical Education for Women: Sargent College, Cambridge 38, Mass. | Kenneth Christophe | Adelaide McGarrett | H.S. | 36 | Sept | $435 yr. | Cert. or Degree |
| University of Minnesota, Minneapolis[1] | Miland E. Knapp | Ruby M. Green | H.S. | 36 | Oct | $530[4] | Degree |
| Mayo Clinic, Rochester, Minn. | Frank H. Krusen | Ruth Ryan | a-b-c | 12 | Jan July | None | Certificate |
| Barnes Hospital, St. Louis | F. H. Ewerhardt | Beatrice F. Schulz | a-b-d | 12 | Sept | $200 | Certificate |
| St. Louis University School of Nursing, St Louis[1] | Alexander J. Kotkis | Sr. Mary Imelda | H.S. | 36 | Jan Sept | $300 | Degree |
| Albany Hospital, Albany, N.Y. | John W. Ghormley | Catherine Graham | a-b-c | 12 | Sept | $200 | Certificate |
| Columbia University, New York City | Wm. B. Snow | JosephineL.Rathbone | a-b-c | 1 or 2 yrs | Sept | $450 yr. | Cert. or Degree |
| New York University School of Education, New York City[1] | George G. Deaver | Elizabeth C. Addoms | a-b-d | 12 | Sept | $525 | Cert. or Degree |
| Duke University School of Medicine, Durham, N. C.[1] | Lenox Baker | Helen Kaiser | a-b-d | 15 | Oct | $300 | Certificate |
| H. T. Watson School of Physical Therapy, Leetsdale, Pa.[1] | Jessie Wright | Kathryn Kelley | a-b-d | 12 | Oct | $300 | Diploma |
| Graduate Hospital of the University of Pennsylvania, Philadelphia, Pa.[1] | George M. Piersol | Dorothy Baethke | a-b-e | 12 | Sept | $300 | Certificate |
| University of Texas School of Medicine, Galveston | G. W. N. Eggers | Ruby Decker | a-b-d | 12 | Jan | $143[4] | Certificate |
| Baruch Center of Physical Medicine of the Medical College of Virginia, Richmond, Va.[1] | Frances Hellebrandt | Edith M. Vail | a-b-c[3] | 12 | Sept | $262[4] | Cert. or Degree |
| University of Wisconsin Medical School, Madison[1] | Harry D. Bouman | Margaret Kohli | a-b-c[3] | 12 | Sept | $120[4] | Cert. or Degree |

*Courses are so arranged that any of the entrance requirements will qualify students for training. a = Graduation from accredited school of nursing; b = Graduation from accredited school of physical education; c = Two years of college with science courses; d = Three years of college with science courses; e = Four years of college; H.S. = High school graduation.

[1] Male students are admitted.

[2] High school graduates accepted for a four-year course leading to A.B. degree.

[3] High school graduates accepted for four-year college course.

[4] Nonresidents charged additional fee.

# Editorials and News

It is not too early to begin making plans to attend the next American Physiotherapy Association conference in May 1948. A summary of the program and some informational material about Chicago will be found on the following pages.

Meeting in a medical center such as Chicago is a decided advantage in arranging a program. The scientific program is very well planned and will include some excellent material. A complete outline will be given in the next issue of the REVIEW.

It is scarcely necessary to point out the accessibility of Chicago and how easily a stop-over in Chicago can be fit into other travel plans. Every physical therapist who really is interested in his profession is obligated to keep informed of the latest developments and research in that field. The conference provides an excellent "refresher course" under pleasant circumstances. Plan now to attend the conference, May 23 to 28, 1948, at the La Salle Hotel, Chicago, Illinois.

## Congratulations to Colonel Vogel

One of our members, Emma E. Vogel, recently was promoted to the rank of Colonel in the United States Army. We salute Colonel Vogel for the contribution she has made to physical therapy and offer her our sincere congratulations.

## Executive Committee Meeting

The semi-annual executive committee meeting was held in New York, December 4, 5 and 6, 1947. Attending were: Sue Roen, Charlotte Anderson, Mildred Heap, Lois Ransom, Paul Campbell, Edith Nyman, Jessie Stevenson, Dorothy Dean, Dorothy Baethke and the national office staff. A summary of the proceedings will be sent to all chapters and also will appear in the *News Letter*.

## New APA Appointments

The executive committee announces the appointment of Mary Haskell, Legislative Chairman, to the National Office staff to do the necessary research on the brochure for hospital physical therapy plans. A committee of six representing the Council on Physical Medicine of the American Medical Association, the American Hospital Association and the American Physiotherapy Association will supervise the compiling of material and publication of this brochure.

After January 1, 1948, all communications regarding legislation or on above brochure should be addressed to Miss Haskell in the National Office.

## Letter from Doctor Mennell

The following letter, dated October 10, 1947, was received by Sue Roen, president of the Association:

Pasadena, Calif.

Dear Miss Roen:

Now that we seem to be stationary once more I want very much to let you know how greatly I value the honour done to me by yourself and members of the executive committee in presenting me with the Golden Key of your Association and for the life membership which it carries with it.

The key has joined that of the Congress of Physical Medicine on my watch chain which I always wear and there it will remain as a most treasured possession.

My wife and I both wish to thank your Association for making it possible to join your Congress this year and we shall always have most pleasant memories of the kindly reception given to both of us and of the help and hospitality extended to us.

All best of wishes for the future of your Association.

Yours ever gratefully,

(Signed) S. JAMES MENNELL

## Visits in the National Office

Doctor Kollio, orthopedic surgeon from Finland, recently visited in the National Office. Doctor Kollio is head of the Invalidi Foundation in Finland and is internationally known in the field of orthopedics.

# American Physiotherapy Association
# Twenty-Fifth Annual Conference — 1948

*What you should know:* Dates — May 23-28 inclusive, Place — La Salle Hotel, Chicago, Ill.

*What about reservations?* A blank will be sent to you in a forthcoming news letter. All reservations will be handled by the hotel. Space for 350 will be set aside but there will be need of "doubling" up to take care of this number.

*Costs:* About the average in any good hotel.

*Program:* Registration tea on Sunday afternoon and an opening session on Sunday night. It is urged you plan to be there for this.

On Monday morning at 9 a. m. the first business meeting will be held. Delegates will be asked to present their credentials at 8:30.

The scientific program planned for the 1948 conference will consist of lecture-demonstrations and panel discussions on the following subjects: The Care of the Paraplegic Patient; The Care of Poliomyelitis Patients from the Functional Standpoint; Physiology Applied to Muscle Reeducation, and the Contribution of Physical Therapists to Nursing Education. These subjects will be considered from the viewpoint of contributing specifically to physical therapy technics and procedures.

In addition, part of the program will be devoted to scientific papers on special subjects: Peripheral Circulation, Treatment of Hand Injuries, Physical Therapy for the Psychiatric Patient, and the presentation of papers on research which is being done or has been completed by a physical therapist.

On Friday there will be a meeting of the school section and visits to physical therapy departments in Chicago.

The Illinois Chapter is making extensive plans to provide buses and to make it possible for you to see the many fine departments in the city. More will be announced later but plan now to stay Friday.

*Motion Pictures:* Time is being set aside for motion pictures or slides which would be of interest to physical therapists. Any member as an individual or an organization who has a movie or slides may apply to the Chairman, Dorothy Dean, Department of Physical Medicine, 303 East Chicago Avenue, Chicago 11, Illinois, for inclusion in the program. All applications must be filed by February 1, 1948.

All applications should contain the following information:

(1.) Title and brief description of the subject matter covered in the film or slides.
(2.) Size of film — 8, 16 or 32 mm. Silent, sound. Black and white or colored.
(3.) Size of slides — 2 x 2, or 3 x 4. Kodachrome or black and white.
(4.) Number of slides and length of time needed to show them. Length of film and time necessary to show it.
(5.) Name of organization and individual responsible for material.

A committee will select those films and slides which in their judgment will be of greatest interest to the audience and which will fit in with allotted time.

Only films and slides thus selected will be shown since the program will be very full and additional items cannot be allowed. In Chicago all movies and slides must be shown by union operators and arrangements for them must be made in advance which necessitates proper scheduling.

*Special Luncheons:* In the past, several of the alumni groups have scheduled luncheon get-togethers. It is requested that any special luncheons be planned in advance to facilitate arrangements. Ruby Tuft, Passavant Hospital, Chicago, Ill., has been named Chairman of "Special Luncheons". For the larger groups a special room can be procured. Small groups may get together in the regular dining room. If any alumni group wishes to reserve a room, please notify Miss Tuft.

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## Invitation to 1948 Conference

Chicago
After the Christmas Rush

Dear Friends:

You are right about wanting to plan now to come to the 1948 American Physiotherapy Association Conference we are going to have in Chicago starting May 23rd. May 23rd seems a long way off but you know how Christmas sneaked up and deluged us with hectic last-minute things to do. No matter where you will be at that time, Chicago is the easiest place in the world to reach.

It is only a 14 hour flight from the farthest corner of the United States, and practically every self-respecting train and bus gets here pretty fast. If you want to relax on the way home you can take a steamship through the Great Lakes to Buffalo.

Don't let the big "Windy City" scare you away from your first Conference. (Statistics show it is NOT the windiest.) We who work and live here love it, and are anxious to share it all with you. "It's vast, it's exciting, it's different—it would take a lifetime to see it all." There is practically a money-back guarantee that you will have a wonderful time. You won't need a car because we are arranging to take you around to the many fine physical therapy departments so you can see the most in the least time. I have been going to conferences for years, and wouldn't miss one for anything.

You will be delightfully surprised to see friends you haven't seen for years. Many of your classmates will be here and we are planning "School Luncheons" so you can find each other right away. There is nothing like a good old reunion to start the ball a-rolling.

The 1948 Conference will be held in the La Salle Hotel, right in the heart of the "Loop", handy to everything. Between sessions of the Conference you can dash out and in a couple of minutes be shopping in any of the famous stores you have always wanted to see: Marshall Field's, Stevens', Mandel's, Carson's, Saks Fifth Avenue, Peck and Peck.

*Lobby of La Salle Hotel*

The La Salle is really a grand place for a conference. It has been completely redecorated, and everything is new and modern and sparkling fresh. I am enclosing a picture of the lobby. They have promised to save a block of rooms for us, so get your reservation in early. Many of the rooms are double rooms. Last year I roomed with a P.T. I had never met before and it was fun getting acquainted with someone interested in the same things I am and exchanging experiences. The La Salle has several moderately priced coffee shops in addition to the main dining rooms, so you can do something about that starved feeling we all get without wasting precious time and energy running around looking for places to eat. If I remember correctly, you like to sink your teeth into big thick tender steaks, and Chicago is the place to find them.

We have many favorite eating spots which combine elegant food and delightful atmosphere. Duncan Hines doesn't know about all of them so we are going to list them for you and tell you how to get there. Friday is the last day of scheduled events of the Conference, but you will probably want to stay over the week-end. There is so much to see in Chicago. It is like taking a trip around the world without leaving town. If this letter doesn't ramble on too long, I'll mention some of the highlights later.

You have heard about Michigan Boulevard, affectionately called the "Boul Mich". Ten minutes' stroll past beautiful shops takes you to the bridge, in the shadow of the Wrigley Building and Tribune Tower. From there you can glimpse the Merchandise Mart, the largest office building in the world. At night its many lights reflected on the river are a sight you will never forget. Just off the bridge there is a little flight of stone steps leading down to the river. (Did you know that the Chicago River flows backward and does not empty into Lake Michigan?) When you get to the bottom of the steps you can get into a speed boat which will scoot you out into the harbor in no time for a breath-taking view of our waterfront and skyline. The picture shows only part of it. Our "Outer Drive" is a superspeedway through parks from the extreme south end of the city north to the Edgewater Beach Hotel, with Lake Michigan on one side and the skyscrapers on the other. Nothing in the whole United States can compare with it.

But I haven't said anything about the Conference itself. All of the scientific sessions and exhibits will be in the La Salle Hotel. The complete program will be available later on. Sunday evening there will be a tea and Dr. H. Worley Kendell of the University of Illinois Department of Physical Medicine will speak. Lectures are scheduled for every morning and every after-

noon, Monday through Thursday. Friday we will take you around to visit physical therapy departments. We have four medical schools of the highest standing in Chicago and many fine clinics, and know that you want to see most of them. The annual banquet will be informal and will be sheer entertainment and relaxation. The theme is a big surprise and I know you won't want to miss it.

*Chicago's waterfront and skyline*

Does this answer your questions? Now for some more about Chicago. Right close to the Loop you can spend hours or days in any of the following places. Don't try to see them all in one day.

*The Art Institute:* World famous collection of paintings, sculpture and fine arts.

*Chicago Natural History Museum:* (We used to call it the Field Museum). You asked me about the famous heads in the Hall of Man. They are here.

*Shedd Aquarium:* Little fish and big fish, plain fish and weird fish. Fish from crossword puzzles and mystery stories.

*Adler Planetarium:* Here you can see stars any day.

*Museum of Science and Industry:* This place is more fun to visit than anything. Each exhibit works with push-buttons and is self-explanatory. It is full of fascinating gadgets and you'll have a hard time tearing yourself away.

*The Zoo:* You know how amusing animals are. We have two zoos in Chicago: Lincoln Park Zoo, not far from the Loop, which is the home of Bushman, the world-famous gorilla, and Brookfield Zoo, the home of America's famous Panda. A bus will take you from Field's right to the door of the Brookfield Zoo. Wear your walking shoes, as there is a lot of territory to cover after you get there.

If you want to know anything more, write again.

Cordially,
THE ILLINOIS CHAPTER

## Major Vogel Appointed Chief of Women's Medical Specialist Corps

In the first move to establish the Women's Medical Specialist Corps recently authorized by Congress as a part of the Regular Army Medical Department, Major General Raymond W. Bliss, The Surgeon General, today announced the appointment of Major Emma E. Vogel as Chief of the new Corps with the rank of full Colonel. Colonel Vogel was administered the oath of office in a brief ceremony on December 5, 1947, in the Office of The Surgeon General in the Pentagon.

Colonel Vogel will assume supervision of what has heretofore constituted three separate sections of the Medical Department. These were the Dietitian Section, the Physical Therapist Section, and the Occupational Therapist Section.

*Major Vogel becomes Colonel Vogel.*

The first task confronting the new Chief of Corps will be the integration into the regular army of qualified applicants for commissions. As integration proceeds, three officers will be selected to head the three branches of the Women's Medical Specialist Corps. These women will be commissioned as lieutenant colonels. Prior to today, no woman has held rank higher than that of Major in any of these three specialist groups.

Colonel Vogel is regarded by the Surgeon

General as the nation's outstanding physical therapist. Appointed in 1942 as director of Medical Department Physical Therapists of the Army, she was the first woman to hold this title.

The authorized strength of the Women's Medical Specialist Corps will be in the ratio of nine-tenths of a member for every 1,000 persons in the total authorized strength of the regular Army with a minimum of 24 officers in the grade of major and 385 other officers in grades of second lieutenant to captain.

It is expected that Colonel Vogel's duties will include: consultant to the Surgeon General on all matters pertaining to the Women's Medical Specialist Corps; planning and initiating of training programs; the formulation of tables of organization and equipment; and the planning and execution of operations pertaining to procurement, assignment, and promotion of members of the new Corps.

## Letters

*The editor welcomes letters of comment or inquiry on any subject of interest to the readers. Response to the special issue on "Anterior Poliomyelitis" was enthusiastic. Excerpts from some of the letters follow:*

"I am one of the enthusiastic boosters for the special issue of the REVIEW. It was an excellent idea and commanded the respect of a good many physicians. . . . I do think that grouping material around a central problem makes concentrated interest and certainly the magazine then lends itself perfectly as a reference for both the student and the old-timer."

—LUCY S. BLAIR

" . . . I have been trying to find words to express my appreciation. It's the thing I've been looking for ever since I started in physical therapy. I also have been wondering if it would be possible to see, in some future issue, articles pertaining only to cerebral palsy treatment."

—MARGARET KRONE

"I am writing for the Kentucky Chapter of the American Physiotherapy Association in regard to the polio edition of the REVIEW. This issue met with favorable comment from all our group. We are very much in favor of having other conditions covered in a similar manner."

—NANCY C. ROTH,
Secretary, Kentucky Chapter

"The Wisconsin chapter of the American Physiotherapy Association heartily approves devoting an entire issue of the REVIEW to one special field such as the recent polio issue."

—MARION MEAGHER,
Secretary, Wisconsin Chapter

"We liked the idea of devoting one number of the REVIEW to polio. How about the large subject of arthritis in a thick number full of divergent views?"

—PHYLLIS SELTENRICH,
Secretary, Oregon Chapter

## About People You Know

*Mrs. Florence Linduff* is now Chief, Physical Therapy, Veterans Administration, Central Office, Washington, D. C.

*Elizabeth Doyle* of the Oregon Chapter has retired after twenty-six years with the State Industrial Accident Commission. The Chapter owes much to her guidance, perseverance, wit and charm during her twenty-seven years of membership and they have appointed her publicity chairman for the Chapter.

## Doctor Dawson to Succeed Doctor Covalt

Dr. A. Ray Dawson, head, physical medicine rehabilitation service in the Richmond, Va., branch office of the Veterans Administration, will succeed Dr. Donald A. Covalt as chief of the Veterans Administration physical medicine rehabilitation service. Doctor Covalt resigned this position in November 1947 to become associate professor of physical medicine and rehabilitation at New York University, School of Medicine, and head of the university's new Rehabilitation Institute.

Doctor Dawson, who graduated from the Medical College of Virginia, served a residency in psychiatry at St. Elizabeth's Hospital, Washington, D. C., and for six years was with the U. S. Civil Service Commission. During World War II he served in the office of the Surgeon General, in the office of the Air Surgeon and as a flight surgeon.

## National Foundation Appoints Doctor Boyd

Dr. Theodore E. Boyd of the Loyola University School of Medicine, Chicago, has been appointed to the newly-created position of associate director of research for the National Foundation for Infantile Paralysis. As associate director, Doctor Boyd will collaborate with Dr. Harry M. Weaver, director of research, in coordinating the National Foundation's vast program of study

into the cause, control and treatment of poliomyelitis and allied virus diseases. Since 1938, the National Foundation has authorized $6,953,256.66 for such research.

## National Organization for Public Health Nursing

Anna Fillmore, R.N., of New York, has been appointed General Director of the National Organization for Public Health Nursing to succeed Ruth Houlton, R.N. Miss Fillmore has been with the Visiting Nurse Service of New York since 1940 successively as staff nurse, supervisor, industrial nursing consultant, and assistant director.

## Public Health Nursing Week

National Public Health Nursing Week will have its fourth annual observance April 11-17, 1948. This special observance will be sponsored by the National Organization for Public Health Nursing of New York City in cooperation with the U. S. Public Health Service and more than 3000 local committees representing visiting nurse associations, health departments, boards of education and citizen groups.

## National Award in Health Education

The Seventh Anniversary Civic Luncheon of the Cleveland Health Museum, November 17, marked the occasion of the announcement and presentation of the 1947 winner of the Elisabeth Severance Prentiss National Award in Health Education. W. W. Bauer, M.D., since 1923 the director of the Bureau of Health Education, American Medical Association, was the recipient of the award.

The Cleveland Health Museum, incorporated in 1936 and opened in 1940, is a unique health education institution. The first "health museum" in America, it is designed especially for introducing man to himself, and has as its main objective the dissemination of health education to all peoples. Museum facilities, such as three-dimensional exhibits (which invite visitor participation in ringing bells, pushing buttons, pulling levers, turning handles and whirling knobs), films, pictures, and so forth, are available for loan.

## First International Poliomyelitis Conference

The National Foundation for Infantile Paralysis announced recently that it would sponsor the First International Poliomyelitis Conference at the Waldorf-Astoria Hotel, New York City, July 12 to 17, 1948.

The Department of State has been requested to transmit invitations to more than sixty foreign governments to send official delegates to the conference. These officials will be asked to present summarizations of the problems of poliomyelitis in their countries at a special session. Presiding officer at the session will be Thomas Parran, M.D., Surgeon General of the United States Public Health Service.

The program will include scientific and technical papers on research and treatment of poliomyelitis to be presented by professional authorities in the field from this country and abroad. In addition, there will be panel discussions on the various subjects.

Besides the sessions, there will be a scientific exhibit section, demonstrations of muscle testing and treatment procedures, and a film program.

## Poliomyelitis Course at University of Colorado

The University of Colorado Medical Center, Denver, Colorado, announces the institution of a course on poliomyelitis, beginning January 5, 1948. Bi-annual sessions will be held for physicians, nurses, physical therapists and occupational therapists. An intensive three-week period will include the medical, physical, social and psychological aspects of poliomyelitis. Brochures are available upon request.

The first course for physical therapists will begin March 1, 1948, the second, October 4, 1948. For further information write to: Dorothy Billenstien, R.P.T., Physical Medicine Department, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver 7, Colorado.

## Model for March of Dimes Poster

Terry Tullos, a little poliomyelitis victim from Laurel, Miss., has been chosen as the poster child for the 1948 March of Dimes campaign against poliomyelitis, as disclosed by Basil O'Connor, president of the National Foundation for Infantile Paralysis.

At three, Terry is the youngest child ever selected for the March of Dimes poster. He will symbolize the thousands of children and adults stricken with poliomyelitis for whom the appeal will be made January 15 to 30. Mr. O'Connor said $30,000,000 would be needed to meet obligations resulting from the increase of poliomyelitis cases during the last five years.

## The Toll of Cripples from Poliomyelitis*

The longest period of sustained high incidence of poliomyelitis in this country was the four years ending with 1946. In that year alone more than 25,000 cases occurred. While only a small percentage of the persons attacked suffer permanent crippling, the number of young people crippled by this disease in the United States increased about 10 per cent in the past 2 years. An estimate as of Jan. 1, 1947 placed the number of persons under twenty-one years of age crippled to some degree by poliomyelitis at nearly 74,000. The increase in those crippled varies from state to state. The largest rise was recorded by Utah, where the crippled survivors increased 230 per cent from 1940 to 1947. The rate of crippling at least doubled in this period in Arkansas, Colorado, Ohio, Tennessee and Indiana. The highest rate of crippled survivors under twenty-one years of age per 10,000 estimated population was 31 in Minnesota, which is more than twice the rate for the country as a whole. Poliomyelitis is the greatest single cause of crippling in childhood and effective preventive measures are not at present available. The National Foundation for Infantile Paraylsis is supporting extensive research and poliomyelitis will some day be controlled.

## Cerebral Palsy Therapy Course

The Institute for the Crippled and Disabled, 400 First Avenue, New York City, is sponsoring a "Cerebral Palsy Therapy Course" of ten weeks' duration, beginning on February 17, 1948. The course is open to registered occupational therapists, registered physical therapists and members of the American Physiotherapy Association. It is being called "Cerebral Palsy Therapy Course" because it also includes occupational therapy.

Registration for the course will be on February 10th from 7 to 8 p.m., at the Institute, at which time applicants must present their registry card or APA membership card, and pay the fee of $15.

## Seminar on Physical Medicine at Galveston

The Medical Branch of the University of Texas is arranging to hold a seminar on "Physical Medicine and Rehabilitation" at Galveston, March 1-5, 1948. Mildred Elson has been asked to speak on "The Status of Physical Therapists." Qualified physical therapists, as well as physicians, are eligible for the course. A tuition fee of $25 will be charged to cover certain administrative costs. For further details address Dr. W. A. Selle, Professor of Physiology, University of Texas, Medical Branch, Galveston, Texas.

## Midwestern Sectional Meeting— American Congress of Physical Medicine

The Midwestern Section of the American Congress of Physical Medicine will hold a meeting and seminar at the Veterans Administration Hospital, Hines, Illinois, February 26 and 27, 1948. The first day will be devoted to the presentation of all aspects of spinal cord injuries, while the second day will be devoted to fractures, peripheral nerve injuries and peripheral vascular disease.

## Veterans Administration Postgraduate and Refresher Courses

Three courses were proposed for postgraduate and refresher work in physical therapy. These courses are being given at the Veterans Administration Hospital, Medical Teaching Center, Memphis, Tennessee. The first one was given November 3, 1947, and continued through November 26. It included electrical diagnostic testing, manual muscle testing, symposium on spinal cord injuries and therapeutic exercises. Guest instructors included Dr. Donald Rose, Dr. Robert Bennett and Catherine Bier. The second course was given January 12 and the third was planned for February 16, 1948.

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## Harvard Physical Therapy Courses for Graduates: Alumni Meeting

A group of 40 of nearby graduates of the Harvard Physical Therapy Course met at dinner on November 15th in the Hotel Continental, Cambridge, Mass., to discuss forming a permanent alumni association. Katherine Carlisle was chairman. Doctor Sever, Doctor Green and Miss Merrill were guests and speakers. Doctor Green reviewed the history of the Harvard Physical Therapy Course which until discontinued last year had been offering courses continuously since World War I.

After World War II Harvard Medical School felt that it could no longer offer physical therapy as the postwar medical students needed all its

*Reprinted from the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, December 6, 1947.

facilities. Doctor Green, recognizing the value of the facilities at Children's Hospital and associated clinical facilities in the teaching of physical therapy, immediately began to plan for a new course which opened this Fall. The Simmons College course is sixteen months in length given in the School of Science and at the Children's, Massachusetts General and Peter Bent Brigham Hospitals.

Officers of the Alumni Association were elected with Margaret Ladd as President.

## National Council on Rehabilitation

The National Council on Rehabilitation is actively interested in forming State Councils. A preliminary planning meeting is to be held in Philadelphia to discuss the formation of a State Council in Pennsylvania. Dr. Henry Kessler, President of the National Council, has pointed out that voluntary agencies act as guardians of the disabled who spearhead the services provided and undertake to educate the public to demand such services. In one large eastern state last year under state rehabilitation services only 400 were rehabilitated. The states case load should have been 2500. A neighboring state with half the population rehabilitated 515 with an additional 200 cases closed.

Mr. Holland Hudson and Miss Evelyn McKay represented the Council at the Dept. of State Conference on drawing up an International Bill of Rights.

## Women's Congressional Committee

A workshop was held in Washington on December 8, 1947, by the Women's Congressional Committee. Present were the Association's two representatives, Mia Donner and Laura Sansbury, and Sue Roen, president, and Lois Ransom, secretary.

## President's Committee on National Employ the Handicapped Week

Representatives of more than 100 national organizations and newspapers recently agreed to an eight point program for the employment of disabled veterans and other handicapped citizens after President Truman told them in the White House garden that "one of the most important things I can think of is the rehabilitation of impaired Americans and placing them in gainful occupations."

The "President's Committee on National Employ the Physically Handicapped Week," meeting at the call of Labor Secretary Lewis B. Schwellenbach, empowered a planning subcommittee, headed by Dr. Merle E. Frampton, Ph.D., to "implement and supplement" the program which includes:

(1) management-labor institutes throughout the country to secure employer acceptance of handicapped workers, emphasize availability and advantages of Federal-States Employment Service facilities, prepare a typical "in-plant" plan for employment of disabled and secure increased employee interest from disabled and nondisabled alike;

(2) investigation of and assistance to present and future community rehabilitation centers, formed to rehabilitate and employ the disabled at community level;

(3) collaboration with Governor's Committees in the States;

(4) local, State and national essay contests "to stimulate the thinking of students, parents and teachers;"

(5) expositions showing the handicapped at work "to arouse public interest and knowledge" while educating employers to the "value and variety of talents possessed by handicapped workers;"

(6) awarding of certificates of merit to individuals and organizations who have cooperated in the employment of handicapped:

(7) study of workmen's compensation laws, and

(8) study of schools for handicapped in order that curricula might bear a direct relationship upon future employment possibilities.

Secretary Schwellenbach stressed the great value of properly trained and placed handicapped workers in his welcome address.

Vice Admiral Ross T. McIntire (MC), USN, Retd., was voted by the group as Chairman of the Committee which includes leaders in industry, business, labor veterans' organizations, religious, professional and women's groups, the radio and press.

* * * *

Your APA representative, Mildred Elson, Executive Secretary, urges every member and every chapter to assist in any local programs for increased employment of the handicapped. It should be noted that in recommendation (2), consideration is given to rehabilitation centers. This does not necessarily mean the building of centers but implies the use of existing facilities.

Every physical therapist is part of this total program through the necessary physical restora-

tion of the handicapped, whether child or adult.

Miss Ransom, Secretary of the Association, attended the meeting in her capacity as Consultant in Physical Therapy, U. S. Public Health Service.

## Physical Therapists Needed at Hines

There is a need, at the present time, for a number of physical therapists at the Veterans Administration Hospital, Hines, Illinois. These therapists must be graduates of approved schools. The bed capacity at Hines is approximately 3,500, consisting of general medical, general surgical, neuropsychiatric and tuberculosis. At present, housing is available at the hospital. If interested, complete Civil Service Application Form #57 which can be secured at any post office, and mail to Dr. Louis B. Newman, Chief, Physical Medical Rehabilitation Service.

## New Members

The following are newly accepted members of the American Physiotherapy Association:

Anderson, Eleanor M., 135½ East 62nd St., New York 21, N. Y.
Deschner, E. Irene, 3221 Victor, Kansas City, Mo.
Donovan, Sara K., 129 W. 34th St., Wilmington 218, Del.
Dougan, Mary Lou, Emory Univ. Hosp., Emory Univ., Ga.
Douglass, Alden C., 628 Baker St., San Francisco 17, Calif.
Frederick, Beatrice, 537 Oakland Ave., Oakland, Calif.
Guebert, Elvera C., 712 North C St., Tacoma, Wash.
Hilmer, Eugenie S., 4 Beverly Pl., St. Louis 12, Mo.
Lane, Elizabeth C., Marlborough Apts., 2 CA, Baltimore 17, Md.
Lyon, Mrs. Marcia, 300 McLean St., Iowa City, Iowa.
Pearson, Genevieve, Lt., Walter Reed Gen. Hosp., Washington, D. C.
Poor, Josephine C., 73 Green St., Augusta, Me.
Regan, Winifred A., 2542 University Ave., Bronx 63, N. Y.
Robb, Nancy J., Rex Hosp., Raleigh, N. C.
Seavey, Alberta F., Box 29, Ventura, Calif.
Schaefer, Beverly, Vets. Adm. Hosp., Dallas, Tex.
Sister Emilie de St. Pierre, St. Charles Hosp., Pt. Jefferson, N. Y.
Smith, Cleo Earleen, 743 S. Union, Los Angeles 14, Calif.
Steadman, Elizabeth, Ridge Springs, E. C.
Vila, Alexander Portell, Inst. of Secondary Teaching, Avenda 1-#152, Cardenas, Cuba.
Wilhelm, Evelyn L., 1446 2nd Ave. S., Fargo, N. D.

*Recent Graduates of Children's Hospital Society, Los Angeles, Calif.:*

Barbaer, Joan C.
Cook, Retta
Cruse, Margot G.
Essig, Jane D.
Inwood, Patricia
Kassell, Julia
Moudy, Pauline
Risser, Ruth A.
Roy, Ruth
Salzman, Betty E.
Smith, Brenda V.
Stewart, Mrs. Annette K.
Teitsworth, Mrs. Betty
Weiss, Ruth

*Recent Graduate of College of Medical Evangelists, Los Angeles, Calif.:*

Carlson, Albert H.

*Recent Graduate of University of Southern California, Los Angeles, Calif.:*

May, Mary-Jo

*Recent Graduates of Stanford University, Stanford Univ., Calif.:*

Gire, Eugenia W.
Hodges, Ann
Kofford, LaJuana
McKewen, Carolyn
Payne, Dorothy M.
Ragland, Mary Martha
Reed, Marie
Reiss, Alma C.

*Recent Graduates of the University of Iowa, Iowa City, Iowa:*

Campbell, Margaret E.
Green, Shirley V.
McKnight, Mary Frances
Sapp, Rosamond
Stephens, Mrs. Beatrice E.

*Recent Graduates of Barnes Hospital, St. Louis, Mo.:*

Hempelman, Carolyn
Keegan, Nanette G.
Stewart, Anne

*Recent Graduate of St. Louis Univ. School of Nursing, St. Louis, Mo.:*

Sister M. Leoncia Misiewicz

*Associate Members:*

Elkins, Earl C., M.D., 719 5th St. S. W., Rochester, Minn.
Friedman, Eliot, M.D., 258 Genesee St., Utica, N. Y.
Martin, Gordon M., M.D., 1541 7½ Ave. N. W., Rochester, Minn.
Northrup, Adelbert M., Principal, Percy Hughes School, Jamesville Ave., Syracuse, N. Y.
Polley, Howard F., M.D., 1135 W. Center St., Rochester, Minn.
Wakim, Khalil C., M.D., 422 14th Ave. S. W., Rochester, Minn.

## Physical Therapy Army Appointments

The Surgeon General of the Army, Major General Raymond W. Bliss, announces that the President of the United States has tendered recess appointments in the Women's Medical Specialist Corps, Regular Army, to the following physical therapists whose names appear on the second list of appointees in this new corps:

| *Name and Present Grade* | *Military Address* |
|---|---|
| Almquist, Mary E., 1st Lt. | Station Hosp., Fort Sill, Okla. |
| Amizich, Amelia D., 1st Lt. | 387 Station Hosp., APO 154, % P.M., New York |
| Anderson, Mildred Jane, 1st Lt. | 5561 Waterman Ave. St. Louis, Mo. |
| Bender, Catherine M., 1st Lt. | Station Hosp. Fort Lawton, Wash. |
| Bradley, Ruth W., Captain | Station Hosp., Fort Ord, Calif. |
| Davison, Frances M., 1st Lt. | 161st Station Hosp., APO 1005, % P.M., San Francisco, Calif. |

| | |
|---|---|
| Ehrhart, Katherine C., 1st Lt. | Brooke Gen. Hosp., Ft. Sam Houston, Texas |
| Ellinger, Ruth W., Captain | McCornack General Hospital Pasadena, Calif. |
| Engsberg, Mae A., 2d. Lt. | Tilton General Hosp., Ft. Dix, N.J. |
| Frost, Virginia L., 1st Lt. | 10th General Hosp., APO 1105, % P.M., San Francisco, Calif. |
| Gray, Ada E., 1st Lt. | 28th Station Hosp., APO 25, % P.M., San Francisco, Calif. |
| Johnson, Frances J., 1st Lt. | Tilton General Hosp., Ft. Dix, N.J. |
| Kuehlthau, Brunetta A., Captain | Oliver General Hosp., Augusta, Ga. |
| Tipton, Dorothy G., Captain | Station Hosp., Ft. Bragg, N.C. |

The following physical therapists' names appear on the third list of appointees in this new corps:

| *Name* | *Present Address* |
|---|---|
| Barreras, Angela, 1st Lt. | Fitzsimons Gen. Hosp., Denver, Colo. |
| Cartwright, Helen M., 1st Lt. | Fitzsimons Gen. Hosp., Denver, Colo. |
| Clevenger, Ruth S., 1st Lt. | Station Hosp., Lackland Air Base, San Antonio, Texas |
| Cole, Olena M., Capt. | Fitzsimons Gen. Hosp., Denver, Colo. |
| Conlon, Marcella, Capt. | Station Hosp. Ft. Benning, Ga. |
| Ehlers, Christine D., Capt. | Brooke Gen. Hosp., Ft. Sam Houston, Tex. |
| Heltman, Grace McNee, Capt. | Murphy Gen. Hosp. Waltham, Mass. |
| Jones, Elizabeth C., Capt. | Station Hosp., Fort Jay, N. Y. |
| Kemske, Dorothy, Inactive | 1131 State St., La Crosse, Wis. |
| Kuraner, Elsie, Capt. | Army & Navy Gen. Hosp. Hot Springs, Ark. |
| La Porte, Ophelia M., 1st Lt. | Percy Jones Gen. Hosp., Battle Creek, Mich. |
| Lura, Edna, Capt. | Physical Therapist Section, Office of The Surgeon General, Washington, D.C. |
| Marshall, Eleanor, Capt. | Station Hosp., U. S. Military Academy, West Point, N. Y. |
| Naranche, Dolores W., 1st Lt. | Station Hosp., Bolling Field, Washington, D.C. |
| Perta, Mary A., 1st Lt. | Walter Reed Gen. Hosp., Washington, D.C. |
| Shockey, Savinah, 1st Lt. | Walter Reed Gen. Hosp., Washington, D.C. |
| Rizzo, Corrine C., 1st Lt. | Brooke Gen. Hosp., Ft. Sam Houston, Tex. |
| Steele, Mada, 1st Lt. | 20th Station Hosp., APO #74 % P.M. San Francisco, Calif. |
| Summy, Ruth, 1st Lt. | Murphy Gen. Hosp., Waltham, Mass. |
| Underkofler, Audrey A., Capt. | Station Hosp., Chanute Field, Ill. |

## Recall Quota for Dietitians and Physical Therapists

In accordance with authority recently granted by the Department of the Army, a recall quota for Dietitians and Physical Therapists has been established.

Officers in these two categories who served honorably during World War II and who are now on inactive status may request extended active duty in the Army of the United States. This personnel will be recalled to active duty in the grade held prior to reporting to a Separation Center. Individuals desiring to apply for extended active duty should make application in writing and must be unmarried, have no dependents under 14 years of age, and be physically qualified.

Application blanks may be obtained from The Adjutant General, U. S. Army, Washington 25, D. C., or from The Surgeon General, U. S. Army, Washington 25, D. C.

## Army Film

The Surgeon General announces the completion of another of the series of films produced by the Signal Corps under the supervision of the Army Medical Illustration Service and the Physical Medicine Consultant's Division. This film, "Toward Independence," designated PMF 5055, deals with the rehabilitation of patients with spinal cord injuries. Application forms for loan of prints to medical groups may be secured by writing to the Commanding General, Headquarters, of the appropriate Army Area, Attention: The Surgeon.

## New Army Insignia

Department of the Army Circular No. 67 published December 11, 1947, authorizes the insignia to be worn by members of the Women's Medical Specialists Corps which will be a caduceus in silver with a monogram consisting of the letters "WS" in black superimposed thereon.

As soon as this new insignia is available, physical therapists will no longer be authorized to wear the caduceus with the letters "PT" superimposed.

## Letter from Japan

The following is an extract from a letter received by the Physical Therapy Branch, Office of The Surgeon General, U.S. Army, from Captain Felie Clark, Supervising Physical Therapist, Headquarters 8th Army, Yokohama:

"The train is traveling through the most picturesque country. It is beyond belief; the mountains on one side, rising majestically from the rice paddies and the gardens, and the Inland Sea, on the other side, tossing its breakers over a rock-bound coast. The chief dietitian and I are making my first trip through Japan to visit the hospitals of the Eighth Army. The conductor, who, by the way, is a fine young corporal in the United States Army, has just told us that we passed through Hiroshima during the night.

"It is amazing to see how every inch of land is utilized. Nothing is wasted. Even parts of the hillsides are terraced for vegetable gardens. The houses are slipped in between the gardens and the rice paddies. The rice is being harvested now. The paddies, which are arranged in plots about 100 feet square, are flooded fields with walkways between. The women do a great deal of the harvesting which is all done by hand. The whole family is present. The baby is strapped to its mother's back as she works, and the older children help carry the rice. All seem very contented. They start work early in the morning and continue until late at night.

"The train goes through a tunnel (there are many on this road), and there to the left of my window is a tremendous god. The statue must be hundreds of feet high. He is the god who brings children to women who pray to him for them. Tucked away in the mountains are many shrines in lovely red shades with 'prayer papers' hung around them.

"Although surrounded by all this wonderland, I cannot feel strange or realize that I flew over 7500 miles of ocean to get here. The American Flag flies on all buildings. The protection of the United States Government and the splendid organization of our Army are in evidence at all times.

"Need I say that physical therapy is very much like it is in Army hospitals in the United States? The equipment is good and the physical therapists are enthusiastic."

## Coming Meetings

| *Date* | *Organization* | *Place* |
|---|---|---|
| Jan. 24-29, 1948 | American Academy of Othopedic Surgeons | Palmer House, Chicago, Ill. |
| Feb. 26-27 | Midwest Section, American Congress of Physical Medicine | Veterans Administration Hospital, Hines, Ill. |
| May 23-28 | American Physiotherapy Association | La Salle Hotel, Chicago, Ill. |

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*Role of the Sympathetic Nervous System in Traumatic Surgery.* H. Gurth Pretty. Amer. J. Surgery, Nov. 1947.

*Refrigeration Anesthesia: A Review.* Richard Carter and Fred B. Moor. Arch. Phys. Med., Nov. 1947.

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*Physical Medicine in the Prevention and Treatment of Athletic Injuries.* Herman J. Bearzy. J.A.M.A., Nov. 8, 1947.

*Early Definitive Treatment of Fractures of the Femur.* John J. Cawley, Charles Abell and Henry Freede. Bull. U. S. Army Med. Dept., Nov. 1947.

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*Observations in Electric Shock Therapy.* Geo. Rosenberg. J. Tenn. State Med. Assoc., Nov. 1947.

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*Ultraviolet Blood Irradiation Treatment of Pelvic Cellulitis: Knott Method.* R. C. Olney. Amer. J. Surg., Oct. 1947.

*Ultraviolet Air Disinfection.* William T. Anderson, Jr. Arch. Phys. Med., Nov. 1947.

# ABSTRACTS

**John S. Coulter, M.D.**

### The Optimum Rest-Exercise Balance in the Treatment of Rheumatoid Arthritis

George Morris Piersol, M.D., M.A.C.P. and Joseph Lee Hollander, M.D., F.A.C.P., Philadelphia. In ARCHIVES OF PHYSICAL MEDICINE, 28:8:505, August 1947.

Drug therapy has its place in the therapeutic regimen, and orthopedic surgery is invaluable in correcting late deformities; but the importance of prevention and correction of deformities by appropriate physical means and exercise before they become permanent cannot be overemphasized.

Exercise must be carried out frequently by every arthritic patient, regardless of the stage or activity of his disease. The amount and type of exercise must be suited to the degree of disability of the patient. The maximum amount of exercise possible without aggravation of the disease process is counterbalanced by rest periods sufficient to prevent fatigue. This is the optimum exercise-rest balance.

Rest has been so overemphasized and exercise so cautiously advocated that the usual result is an overrested and underexercised patient in whom muscle atrophy and contractures develop. We believe that exercise in the management of arthritis is so important that it deserves additional emphasis. As a patient once aptly put it, when commenting on our regimen, "The exercise is hard, but the rest is easy."

### Bilateral Ophthalmoplegia in Acute Anterior Poliomyelitis

Edwin S. Wright, M.D., Glendale, California. In AMERICAN JOURNAL OF OPHTHALMOLOGY, 30:10:1294, October 1947.

The case to be reported is of unusual interest since it is a description of a rare condition; that is, bilateral complete ophthalmoplegia in acute anterior poliomyelitis.

*Summary*

Although ocular complications of acute anterior poliomyelitis are not uncommon, ophthalmoplegia is rare. A case of bilateral complete ophthalmoplegia with left seventh-nerve palsy is presented.

### The Effect of Body Posture on Uterine Position

A. W. Diddle, M.D., William F. Mengert, M.D., and Ruth Maxwell Sanders, A.B., Dallas, Texas. In AMERICAN JOURNAL OF OBSTETRICS AND GYNECOLOGY, 54:3:391, Sept. 1947.

Forty-five years ago Tandler taught that the normal uterus is a movable organ. In 1936, Harris, Mengert and Plass demonstrated with bimanual palpation that it alters its position in response to postural change. Diddle, Mengert and Earl confirmed this finding radiographically in 1939 with an exhibit of superimposed photographs and roentgenograms. Part of this material was utilized in the present study to illustrate the amount of uterine movement with change in body posture. Diagrammatic line drawings were used, since it was impossible from a practical standpoint to reproduce the original material.

*Discussion*

Objectivity is the chief value of the present study. Movement of the uterus, with the canal artificially rendered opaque by lightweight materials, was seen and measured on roentgenograms. Harris, Mengert and Plass reported uterine movement from ante- to retroversion with change of body posture of women confined to bed with pulmonary tuberculosis but their study was based upon the subjective interpretation of bimanual palpation. Gross change only was reported and they found that version from anterior to posterior uterine position (or vice versa) did not occur in less than twenty-four hours.

Passage of time is important in any consideration of uterine mobility, since intestines must be displaced before profound change is possible. Moreover, uterine weight, effective for intestinal displacement, is small in relation to that of viscera displaced. Therefore, the rate of change is slow and depends to some degree upon intestinal peristalsis. On the other hand, minor degrees of change can occur during the passage of minutes, without the necessity for intestinal displacement. It is entirely probable that the gross changes reported by Harris, Mengert and Plass require hours because of the necessity of intestinal displacement. The minor changes demonstrated by the present study may be effected immediately because intestines are locally compressed and not displaced.

It is commonly taught that the anteverted uterus cannot prolapse. In other words, the uterus must assume midposition or become retroverted before descent begins. This was not the case in the patient with incomplete prolapse, since descent occurred with the uterus anteverted, and the canal practically horizontal as she stood erect. Moreover, complete prolapse of the anteverted uterus following the Watkins-Wertheim interposition operation does occur. Such a patient was observed by the authors.

It is apparent that maintenance of uterine station and cession depends upon integrity of fascial support. In contradistinction, the uterine body bends (flexion) and turns (version) on a transverse axis as a result of the combined influences of its muscular tone, position of the intestines, body posture, and perhaps the tilt of the pelvis. It was clearly demonstrated that the normal uterus tended to gravitate in conformity to the several positions assumed by the subject. This tendency was distinctly evident in the normal, and greatly exaggerated in patients with uterine prolapse.

### Diagnosis and Management of Peripheral Nerve Injury

E. S. Gurdjian, M.D. and J. E. Webster, M.D., Detroit, Michigan. In THE AMERICAN JOURNAL OF SURGERY, LXXIV, 3:359:367, September 1947.

Dysfunction of a peripheral nerve may occur from contusion and laceration in wounds, in association with fracture and dislocation of long bones and in some instances by chronic irritation. By far the most common type of interruption is that due to involvement in lacerations, bullet and other penetrating wounds. This paper will deal primarily with the diagnosis and management of nerve injury in lacerations. A few comments also will be made concerning involvement in dislocation and fracture of long bones and from chronic irritation.

*Rehabilitation*

Splints of affected parts are, in general, of little help in rehabilitation. The advantage of preventing overstretch of muscles is offset by the disadvantage of immobilization, resulting in inactivity of the affected muscles. The patient looks upon the splint as a form of treatment and overlooks the insidious fixation of the joints and muscle atrophy; however, patients with dropped wrist, shoulder or foot should have the parts neutralized, especially during sleep.

The plan of rehabilitation for the patient with peripheral nerve injury must begin immediately after trauma. As early as possible the patient must be instructed and repeatedly advised regarding the importance of continuous physical therapy exercise of the affected part. Instead of maintaining a passive role, an active, interested and cooperative viewpoint must be indoctrinated in the patient.

Any surgical procedure is but a single step in the treatment. A successful result also depends on continuing exercise performed through a period of months. The patient cannot simply be told to exercise his extremity. He should be taught the gross fundamentals of the anatomy and physiology of the involved part and the role of occupational physical therapy. This can best be done by a therapist who with adequate facilities can teach and encourage progress. The facilities are simple devices which stimulate the patient to exercise and illustrate muscle movements which he in turn can imitate.

It is of importance that the patient participates in the experiences and progress of those also employing the physical therapy and occupational facilities. He can be impressed by seeing the retarded patient who neglected his hand or he can be stimulated by the progress of the cooperative patient.

### Functional Changes in Muscle and Nerve Resulting from Prolonged States of Shortening

Norma M. Hajek, M.S., M. E. Godbey and H. M. Hines, Ph.D., Iowa City. In ARCHIVES OF PHYSICAL MEDICINE, XXVIII, 11:690:4, November 1947.

Excessive and prolonged shortening of skeletal muscle is associated with changes in its properties whereby the muscle becomes set at a new length and fails to return to its original length during relaxation. This condition of muscle has been referred to by Ramsey and Street as the "delta" state. The clinical and experimental conditions in which marked and prolonged muscle shortening occurs are numerous and result from such conditions as tenotomy, immobilization in a shortened state by means of casts or other mechanical restraint, loss of a normal stretching force from the paralysis of antagonist muscles or following the local injection of tetanus toxin. Muscular shortening may be found in lesser degree in association with the spastic states, which are common to certain lesions of the central nervous system, such as the muscle spasms in acute poliomyelitis.

This report is concerned with a quantitative study of the functional damage to muscle which occurs during states of prolonged shortening and with methods for graduating the degree of muscle impairment.

*Summary*

A study was made of the effects of prolonged states of shortening upon the functional characteristics of the gastrocnemius muscle of the rat. The state of muscle shortening was produced either by tenotomy or by the local injection of tetanus toxin and was associated with a gradual loss of muscle weight and strength and with a subnormal muscle temperature. The muscle weakness was due in part to atrophy and in part to damage to the tension-developing mechanisms. These changes were reversible in that the affected muscles ultimately regained their normal functional patterns and most of their weight and strength.

The local injection of tetanus toxin proved to be a consistent and reliable method for the production of shortened states in muscle. The dose of toxin could be graded so as to produce different degrees of muscle damage. Its use permitted studies to be made upon the affected muscles prior to the onset of extensor rigidity, during the period at which the shortening was of the nature of reflex tetanus, after the muscle had become set at a new shortened length and at various times during the recovery period. No evidence was found that tetanus toxin caused impairment of neuromuscular transmission or affected muscles prior to the onset of extensor rigidity.

### Bell's Palsy

Karsten Kettel, M.D., Hillerod, Denmark. In ARCHIVES OF OTOLARYNGOLOGY, 46:4:427, October 1947.

By Bell's palsy is understood an apparently idiopathic (genuine) peripheral disease of the facial nerve which unfortunately has been called "rheumatic facial paresis" or "paresis nervus facialis 'e frigore'."

Little is known about the disease from the standpoint of etiology; so much seems to be clear, however, that "Bell's palsy," which is far from designating an entity, has become a collective diagnosis for all cases of peripheral facial paresis in which it has been impossible to demonstrate a local causation.

The lack of knowledge has also left its mark on the discussion of the genesis of the disease, which practically has been confined to theoretic deliberations.

In 1932, however, Ballance and Duel began to operate on patients suffering from Bell's palsy, decompressing the facial nerve by opening the fallopian canal from the stylomastoid foramen to the lateral semicircular canal, their view being that the disease is due to edema of the facial nerve, which is compressed by the inelastic bony canal.

Morris stated that 6 to 8 weeks was the utmost limit for expectant treatment of Bell's palsy which shows no signs of beginning mobility or only slight signs, but he added that if the faradic reaction becomes negative or the reaction of degeneration becomes positive before this period has passed, the decompression must be carried out as soon as possible. Ticke (1939) wrote: "In my experience the 85 per cent that recover had never lost their response to faradic stimulation, . . . the 15 per cent who lose their response to faradic stimulation and show no improvement in from 6 to 8 weeks should have a decompression of the facial nerve."

### Early Ambulation in the Practice of Obstetrics

E. Cullen Bryant, M.D., Toronto, Ont. In THE CANADIAN MEDICAL ASSOCIATION JOURNAL, 57:3:259, September 1947.

If there is not complete agreement among all observants, those that have tried early ambulation are convinced that it has many advantages. The functions of the body, both in health and disease, depend upon efficient respiration, circulation, digestion and elimination of wastes. It is known that these functions are temporarily disturbed as a result of confinement, anesthetic, prolonged labor, and prolonged immobility in bed. Lack of exercise of the chest muscles and impaired pulmonary metabolism leads to lessened vital capacity, circulation stagnation, shock, thrombosis, phlebitis and embolism. Intestinal and muscular atony from inactivity prolongs the period of recovery and undermines the patients general health and depresses her morale.

Workers, especially those in Boston, have shown that the vital capacity is greatly reduced with bed rest and it takes considerable time to get back to normal, while if one institutes early ambulation, the vital capacity comes back to normal much more quickly and thus the normal body functions are at the same time restored.

### Studies of Thermal Injury: The Relative Importance of Time and Surface Temperature in the Causation of Cutaneous Burns

A. R. Moritz, M.D., and F. C. Henriques, Jr., Ph.D., Department of Legal Medicine, Harvard Medical School, Boston, Mass. In THE AMERICAN JOURNAL OF PATHOLOGY, 23:138:695, September 1947.

Although it is common knowledge that there is an inverse relationship between the intensity of a thermal exposure and the amount of time required to produce a burn, there is a remarkably little available information as to the rate at which burning of human skin occurs at any given surface temperature or as to the pathogenesis and pathological characteristics of burns in which the duration and degree of rise in intracutaneous temperature was known or could be calculated with any degree of accuracy.

The primary purpose of this investigation was to obtain information regarding the effects on human skin of episodes of hyperthermia of varying duration and of varying degrees of intensity. The direct approach would have been to make all experiments on human subjects. For various reasons this was not feasible. It was decided first to establish the time-temperature thresholds for varying degrees of cutaneous injury by experiments on an animal having a skin similar to that of man, and then by means of a relatively small number of critical exposures of human skin to establish the extent to which the more comprehensive animal data are applicable to man.

#### *Summary*

The reciprocal relationships of surface temperature and duration of hyperthermia in the production of cutaneous injury have been investigated for pig and man. The data were derived from experiments in which the surface of the skin was brought immediately to, and maintained at, a constant hyperthermic level in such a manner that there was no external mechanical interference with the flow of blood through the skin.

Although there were certain qualitative differences in the reactions of human and porcine skin to excessive heat, there were no significant quantitative differences in their susceptibility to thermal injury in these circumstances.

#### *Time and Temperature in Relation to the Occurrence of Cutaneous Burning*

In order to characterize any episode of hyperthermia as critical in respect to its capacity to destroy the epidermis, it is necessary to know both the intensity and the duration of the exposure. When the temperature of the skin is maintained at 44° C., the rate of injurious change exceeds that of recovery by so narrow a margin that an exposure of approximately 6 hours is required before irreversible damage is sustained at the basal cell level. At surface temperatures of 70° C. and higher, the rate of injury so far exceeds that of recovery that less than 1 second is required to cause trans-epidermal necrosis.

At surface temperatures between 44° and 51° C., the total exposure time required to destroy the epidermis is essentially identical to the total duration of the steady thermal state within the epidermis, and, under these circumstances, the rate at which burning occurs is almost doubled with each degree rise in temperature.

Below 44° C. there is a rapid decrease in the rate at which burning occurs and the time-temperature curve is asymptotic in the direction of the time axis. This is probably due to the increased effectiveness of the cellular reparative processes as the hyperthermic level approaches the temperature range that is normal for the tissue.

At surface temperatures greater than 51° C., the exposure time required to destroy the epidermis is so short that during most all of it the deeper layers of cells are in the process of being brought to, rather than being maintained at, a state of thermal equilibrium with the surface. Thus, as the surface temperature is raised above 51° C., the rate of injury begins to fall off and a time-temperature curve depicting the threshold at which trans-epidermal necrosis occurs is asymptotic in the direction of the temperature axis.

The minimum time required to destroy the epidermis at surface temperatures above 70° C. was not determined. It was observed, however, with exposures at flame temperatures (over 1000° C.) that the amount of time required to raise the temperature at the epidermal-dermal junction to a cell-killing level is so brief that the interposition of anything capable of impeding heat transfer to the skin may be sufficient to make the difference between burning and absence thereof.

#### *Compressive Hyperthermia*

Although pressure may increase the rate of heat transfer to the skin, and thereby the rate of burning, by improving the interface contact between it and a solid hot object, there was no evidence that compressive occlusion of dermal blood vessels has any effect on the susceptibility of the epidermis to thermal injury. When hot water was applied to the surface of the skin at different pressures, it was observed that compressive ischemia did not alter the rate at which burning occurred. It was concluded that the conduction of heat energy away from the skin surface by way of the blood stream does not afford a significant degree of protection against epidermal injury.

#### *Color of Cutaneous Burns*

Compression of the skin during exposure to heat may alter the surface color of the resulting burn without affecting its severity. Within a certain range of surface temperature, the application during the exposure of sufficient pressure to blanch the skin may cause a

burn to remain ischemic that would otherwise be hyperemic. In such circumstances, differences in color are not indicative of differences in the depth of the injury.

In burns produced without concomitant compression of the skin, the color of the surface of the burn is determined in part by the rapidity and degree of the initial increase in dermal temperature and in part by the duration of the exposure. The surface color of such burns is not a useful criterion for estimating either the severity of injury or the amount of blood that may be pooled in the underlying tissue. When the temperature of the dermis is raised slowly, the superficial vessels become engorged and retain blood even though the tissue is subsequently coagulated by progressive increase in the intensity of the hyperthermia. When the initial rise in dermal temperature is rapid and high, the superficial vessels contract so quickly that there is no opportunity for them to become hyperemic. Although such burns are superficially ischemic, there is intense hyperemia of the more deeply situated vessels.

### The Pathology and Pathogenesis of Cutaneous Burns: An Experimental Study

A. R. Moritz, M.D., Boston, Mass. In THE AMERICAN JOURNAL OF PATHOLOGY, XXIII, 6:915, November 1947.

This report concerns the pathogenesis and pathologic characteristics of cutaneous burns in relation to the duration and intensity of thermal exposure and to their susceptibility to organization, repair and healing.

*Summary*

The transfer of heat to the skin at a rate sufficiently great to raise the subsurface temperature to an appreciably higher level than that which is normal for the organism leads to a series of local reactive and alternative changes, the severity of which bears a direct relationship to the degree and duration of the temperature rise. The nature of the change that occurs at any given depth below the surface of the exposed skin is determined in part by the intensity and duration of the temperature rise at that level and in part by the nature of the affected tissue.

The mildest form of epidermal injury produced by hyperthermia is latent in the sense that it is not associated with recognizable alteration in cell structure. Such injuries are reversible and the time required for their reversal increases in direct relation to the time required for their production.

The earliest visible evidence of thermal injury of the epidermis is a redistribution of chromatin within, and swelling of, the nuclei, first in the intermediate and later in the deepest layer of epithelial cells. Further injury results in swelling and disintegration of the cytoplasm of the basal cells and pyknosis of nuclei throughout the entire thickness of the epidermis. As the result of alterations in the basal cells or in the cement substance that binds them to the dermis, hyperthermia may result first in a reversible and subsequently in an irreversible impairment of the attachment between epidermis and dermis. If the temperature rise within the epidermis does not exceed a level of approximately 55 degrees C., further primary thermal alterations of the epithelial cells either do not occur or are so slow in development as to be of negligible significance.

When the exposure is such as to result in a progressive rise in subsurface temperature, the next step in the succession of alternative changes is the occurrence of transepidermal coagulation. When the epidermal temperature is raised rapidly to a level higher than 55 degrees C., coagulative changes may mask both nuclear swelling and cytoplasmic disintegration. Further increases in the temperature of the epidermis result in progressive desiccation and eventually in carbonization.

The earliest visible alterative change in the dermis in response to hyperthermia is constriction of the superficial blood vessels. Ordinarily, this is followed almost immediately by vasodilatation. When the rise in dermal temperature is sufficiently rapid and high, the superficial vessels become permanently fixed in their initial reactive state of constriction and vasodilatation occurs only at deeper levels where the temperature rise has been less extreme.

Thermal vasodilatation characteristically leads to increased vascular permeability and edema formation. The escape of edema fluid at any particular subsurface level requires, first, that the vascular injury at that level has been sufficiently severe to result in increased mural permeability and, second, that it has not resulted in cessation of blood flow through the damaged vessels.

Although thermal exposure of appropriate intensity and duration impair the attachment of epidermis to dermis and increase the permeability of the superficial capillary plexus of the dermis in both pig and man, it is only in the latter that a sufficient amount of edema fluid collects beneath the epidermis to cause true vesication.

Absence of vesication in human skin that has been exposed to heat may indicate that the rise in dermal temperature was insufficient to cause increased vascular permeability, that insufficient time has elapsed for the collection of enough fluid beneath the epidermis to cause appreciable elevation, that the hyperthermia was so extreme as to have caused cessation in blood flow through the superficial capillaries, or that cutaneous ischemia and loss of vasomotor irritability were antecedent to the exposure to excessive heat.

As in the case of the epidermis, coagulative changes occur in the dermis when its temperature is raised to, and maintained for a sufficient period at, a level higher than 55 degrees C. Further increases in dermal temperature may result in desiccation and carbonization.

It was found that the superficial appearance of a burn is not a reliable criterion by which to judge the depth to which the tissue may have been irreversibly injured. The surface of a relatively shallow burn may show coagulation and even carbonization if the exposure has been intense and brief, whereas a thermal exposure of insufficient intensity to coagulate even the most superficial portions of the skin may, nevertheless, cause deep destruction if sufficiently prolonged.

Although the quantitative results of a short exposure of high intensity may be similar to those of a long exposure at low intensity, there are likely to be significant qualitative differences between such injuries. Hyperthermia of high intensity results in a coagulative type of necrosis in which the dead tissue does not undergo autolysis, resists organization, and is usually disposed of by sequestration. Hyperthermia of low intensity results in an noncoagulative type of necrosis in which the dead tissue undergoes autolysis and is readily susceptible to organization.

Biopsy of a burned area within 24 hours should provide useful information pertaining to the depth and nature of injury. Recognition by microscopic examination of dermal coagulation would indicate eventual sequestration of the tissue so affected. Recognition of a zone of irreversible injury would indicate the need for debridement before attempting to graft new epidermis on the surface.

## An Optical Goniometer for Observing Range of Motion of Joints

Harry A. Wilmer, M.D., Ph.D. and Earl C. Elkins, M.D., Mayo Clinic, Rochester, Minn. In ARCHIVES OF PHYSICAL MEDICINE, XXVIII, 11:695:703, November 1947.

When one person makes serial measurements of range of motion of a joint, the readings usually are consistent. However, when another observer, using the same instrument on the same patient, attempts to determine range of motion, the measurements are often at great variance, particularly if he is unaware of the readings previously obtained. Employing the common goniometer, observers frequently find results 10 to 20 degrees apart. This violates a cardinal rule of the quantitative method of measurement, in that the facts are not reproducible under ordinary circumstances by a second observer.

### *Comment*

An improved optical goniometer which eliminates most of the disadvantages previously mentioned is illustrated. The system of lenses and scale is identical with that previously described. To hold the device in a sturdy mounting, with a rotating circular marking arm, Mr. Dana Rogers and Mr. I. A. Quehl, of the Mayo Clinic Instrument Shop, perfected and machined the instrument shown. The device is held with one hand and, after the angle to be measured has been sighted in the manner described previously, the marking arm is rotated until it coincides with the upright arm of the angle. The instrument can then be read at one's leisure. Thus one does not have to read the angle at a moment's glance.

### *Summary*

An optical goniometer for measurement of range of motion of major joints is described. It is essentially a reducing lens with a 360 degree scale attached.

The instrument was tested against unknown angles. There were 520 observations by twenty-nine physicians and eighteen technicians and secretaries. The standard deviation of the error of the physicians was 2.53 degrees. The mean and its standard error were—0.66±0.14. The physicians read 96 per cent of the angles on paper or the blackboard with an error of ±5 degrees or less, and read 49.5 per cent of the angles exactly. The control group of women observed 73.5 per cent of the angles with an error of ±5 degrees or less.

The device described deserves further study.

## Rate of Regeneration in Human Peripheral Nerves

Sydney Sunderland, M.D., D.Sc., Melbourne, Australia. In ARCHIVES OF NEUROLOGY AND PSYCHIATRY, 58:3: 251, September 1947.

In the present inquiry an attempt has been made to calculate the rate of regeneration after lesions of human peripheral nerves and to analyze the events that occur in the interval between the injury and the onset of clinical recovery. The importance of this information in regard to the treatment and prognosis of peripheral nerve injuries is self evident. The investigation was commenced at an Australian military hospital in 1940, when it was apparent that large numbers of patients with nerve injuries would again come under observation. All the patients here reported on remained under my care until either (a) recovery was complete or sufficiently advanced to warrant the patient's return to service or (b) the anticipated period of incapacity rendered such a return unlikely. In the latter event the patient was discharged from the service and transferred to the Department of Repatriation, where the facilities provided have enabled observations to be continued over a period of six years. The examinations throughout were conducted by the same observer, considerably reducing the personal factor introduced by the transferring of patients from clinic to clinic. Investigations relating to the rate of regeneration in individual peripheral nerves and of motor and sensory fibers have already been reported. A general review and a discussion of the problems relating to this aspect of repair are now possible.

### *Summary*

A. Methods previously employed to calculate the rate of regeneration are reviewed in detail, with special reference to those used to study this process in human peripheral nerve injuries.

B. From a study of the rate of regeneration in a series of human peripheral nerve injuries, the following conclusions are made:

1. There are two separate events in the process of repair: (a) regeneration of the axon, and (b) functional maturation of the axonal pathway, which involves further morphologic changes of a complex character, such as myelination and the restoration of fiber diameter. The second process proceeds at a slower rate than does the advance of the axon.

2. The velocity of regeneration for both processes diminishes progressively over the whole period of recovery.

3. There is a relationship between the progressive diminution of the rate of regeneration and the distance of the growing axon tips from their cell bodies. Thus, the initial rate is faster when the lesion is close to the parent neurons and slower when the lesion is more remote. In the former case, the rate slowly diminishes, and on reaching the more distal level, approximates the beginning rate of regeneration for a lesion in that segment.

4. After axonotmesis, the rate of advance of functional maturation over the proximal portion of the nerve (arm and thigh) is in the vicinity of 3 mm. per day and slowly diminishes to approximately 0.5 mm. per day over the distal portion (hand and foot). The rate following suture is slower for all sections of the nerve—it was, however, not possible to ascertain percisely to what extent this was so.

5. After suture, the axon tips advance down the forearm and leg at a rate, in the vicinity of the elbow and knee, of approximately 3 and 2 mm. per day, respectively, but this rate gradually slows until at the wrist and ankle it is commensurate with that observed for functional completion.

C. The factors responsible for individual variations in the rate and for its progressive decline throughout the process of repair are discussed in detail.

1. The velocity of regeneration is the resultant of (a) central forces provided by the cell body and (b) the peripheral resistance against which the central growth forces act.

2. The observations suggest that the diminishing rate is principally the result of waning central forces of growth, which are reduced as the axon lengthens, and that the decline is not significantly contributed to by any peripheral factor in the distal stump below the site of the lesion. Furthermore, it is not the length of time for which the nerve has been growing which is the factor controlling the rate but the distance of the growing axon tips from the parent cells.

3. An important peripheral factor leading to a re-

duction in the velocity is constriction at the site of injury, due, for example, to scar tissue, which may be situated within or around the nerve.

4. The level of the lesion does not appear to affect the rate over any given section of the nerve but is closely related to the initial velocity or regeneration. Thus, the rate in the initial stages of recovery is faster with high lesions, since these are close to the parent neurons, whereas when the lesion is at a lower level the initial rate is slower because the influence of the central forces of growth is weaker.

5. Two factors always must be taken into consideration when attempting a comparison of the rate of regeneration in any two instances: (a) the length of nerve over which the rate is calculated; and (b) the levels at which the measurements are taken.

D. The latent period, or interval between the date of injury and the onset of clinical recovery, is analyzed. It comprises (a) the initial delay, (b) the time occupied by the growth and maturation of the regenerating axons and (c) the terminal delay. All three components are defined and discussed.

1. Information required for the calculation, in any case, of the time occupied by the growth and maturation of the regenerating axon is provided.

2. For reasons fully set out, it is considered preferable not to attempt any separation of the initial and the terminal delay when analyzing the latent period, but to regard the two as comprising a combined period of delay in the process of repair.

(a) The combined delay varied from one to thirty-two weeks, with a mean of thirteen weeks after axonotmesis and of sixteen weeks after suture.

(b) The combined delay rose as the distance of the lesion from the muscle increased; this was due to an increase in the period of denervation.

(c) The combined delay was of longer duration with the severer lesions. This is attributed to two factors: (1) an increased initial delay, which, in turn, is probably due to an increase in the amount, extent and density of obstructing tissues in the injured segment. These morphologic features are in general related to the causative injury. Excluding the exceptions, the evidence suggests that these morphologic changes are minimal with minor injuries and maximal with stretch injuries due to severe gunshot wounds and with concomitant bone injury, prolonged infection and considerable scarring. (2) An increase in the terminal delay occasioned by the increase in the period of denervation, which is due to the increased initial delay and to the slower rate of growth of axons when this is associated with it.

E. It is concluded that repair is adversely affected by wound infection and scarring only when, and so far as, these factors add to the severity of the nerve lesion.

## Free Tendon Grafts in Secondary Flexor Tendon Repair

J. William Littler, M.D., New York, New York. In THE AMERICAN JOURNAL OF SURGERY, LXXIV:3:315, Sept. 1947.

A common injury requiring the use of a free graft in secondary repair is the severed deep flexor tendon in the distal palm or proximal phalanx. The tendon is disrupted in the region of the proximal annular ligament where a primary suture frequently fails, unless it is done with the most exacting technic under favorable conditions. Severed tendons complicated by fractures of the metacarpals or phalanges, as seen in crush and missile injuries, are repaired following union of the fractures, resurfacing if necessary and joint mobilization. In clean wounds, even though tendon repair is delayed, severed palmar and digital nerves can be sutured at the time of primary wound closure.

Good primary healing with a minimum of cicatrix is gained through immobilization. Early motion has no place in free tendon grafting, for not until three weeks have passed are the tendon junctures united. An untraumatized tendon will not adhere firmly to surrounding soft tissue if left undisturbed for this period. During the early postoperative phase, when the graft is swollen, softened and avascular, motion promotes the formation of scar and adhesions. The cicatricial index and reaction to injury varies in patients and has some influence on the final functional result in tendon surgery.

At the end of three weeks the skin sutures are removed and the pull-out wire at the terminal phalanx is withdrawn. Passive joint exercises are carried out during the following three or four days and then active flexion is started. During the latter part of the fourth week the patient is instructed to hold firmly in extension the metacarpophalangeal joint, thus transmitting the pull to the proximal interphalangeal joint. If this is not done flexion will be gained only at the former joint. A gripping block made of soft wood 3½ by 1¾ by ⅝ inches is excellent for exercising the finger. Persistent active exercise is important in gaining good finger flexion.

## Care of the Long Term Patient Requires Careful Planning

David Littauer, M.D., Administrator, Menorah Hospital, Kansas City, Mo. In MODERN HOSPITAL, 69:3:63, September 1947.

### *Physical Therapy Department*

Certain groups of long term patients, particularly those suffering from arthritis, spastic or flaccid paralysis or surgical conditions of the bones, joints and muscles, require extensive therapy by physical means.

This implies a more elaborate department than is normally required in the acute general hospital. A small gymnasium must be provided. In addition to the arm and leg whirlpools and the Hubbard tank, hydrotherapy must include a walk-about pool, with its movable hand rails and crane and sling.

Physical therapy for the convalescent recovering from an acute illness or operation is normally short-lived and simple and is directed by the registered physical therapist on the prescription of the attending physician or surgeon. The long term patient, however, is frequently a baffling clinical problem. In such cases, the medical scientist must seek the advice of a specialist in the modalities of physical therapy who also knows the physiology and pathology of the condition to be treated. Somewhere along the line of planning, therefore, a decision may have to be made in favor of a doctor of physical medicine over a registered technician.

*Occupational Therapy:* This department should be large enough to offer a variety of types of work to the long term patient, whether he can come to the workroom or is confined to his bed. Looming of rugs, working with leather, book-binding, painting, carpentry and woodworking are activities which can occupy a patient's time, enable him to create something useful and in many instances serve as therapeutic devices to exercise atrophied or spastic muscles and stiffened joints. In larger hospitals an occupational therapy department could be combined with physical therapy into one department of rehabilitation.

### Manipulation of Stiff Joints

James Mennell, M.D., London, England. In ARCHIVES OF PHYSICAL MEDICINE, XXVIII, 11:685:89, November 1947.

It has been possible to develop the science and art of joint manipulation only since it has become possible to study the living anatomy of joints. Till that time arrived, joint manipulation was more or less haphazard and was, therefore, unpopular and remained undeveloped so far as medical practitioners as a whole were concerned. Then the trouble arose that when the science seemed to lay the way open the art had still to be developed, and it was during this stage that the whole proceeding fell into disrepute again because of faulty technic. There are certain rules which must be obeyed if any form of medical treatment has to be lead to success; the object in view in preparing this article has been to state these laws and to try to explain the reasons for their existence.

*Summary*

1. The living anatomy of joints is an essential study for persons who wish to undertake joint manipulation.
2. The exact diagnosis of the condition present is essential before one should try to restore mobility at any time by forced movement.
3. The laws of anatomy and physiology must be applied to any and every movement performed, and the movements that are not under voluntary control must be secured before those that are voluntarily controlled.
4. The movement of every joint in the body requires a special technic, and unless this technic is scientifically acquired more harm than good is likely to be done.

### Common Shoulder Injuries

Harrison L. McLaughlin, M.D., New York, New York. In THE AMERICAN JOURNAL OF SURGERY, LXXIV, 4: 282:284, October 1947.

Common shoulder injuries are simple problems when treated by a program founded upon a knowledge of the normal functional anatomy of the part. However, the therapeutic program must be tempered by a clinical philosophy which includes comprehension and acceptance of certain proven truths pertaining to the shoulder mechanism:

1. The only useful functions served by complete immobilization or partial restriction of function of the injured adult shoulder include: (1) local rest of recently damaged tissues, (2) protection against additional damage and (3) maintenance of bone to bone apposition when aiming for scapulohumeral arthrodesis in the position of maximum function.
2. The inevitable harmful function served by immobilization or restriction of function is the production of a rapidly progressive muscular imbalance, atrophy, stiffness of the joints and prolonged pain and disability.
3. Improper treatment often imposes a more severe penalty upon the patient than would a complete absence of treatment.
4. Considerable derangement of any single motor skeletal component of the shoulder is possible without significant interference with total function.
5. The most important single factor predisposing to unsatisfactory results in common injuries of the shoulder is the utilization of therapy based upon the anatomical or x-ray characteristics of the injury to the exclusion of all other factors. The presence or absence of normal anatomy, while desirable, is not especially important to the proper functioning of the shoulder mechanism.

Aspirin, codeine, gentle local heat, sedative massage and other soothing measures available are useful to control pain and spasm, especially during the first week following injury. It should be explained to the patient that any restricting dressing applied is for support, protection and comfort and not designed to immobilize the arm; and that the resultant restriction of motion is a necessary disadvantage of the early stages of therapy which must be compensated for by added effort on his part as soon as diminishing symptoms permit gradual progressive resumption of motion.

Active, gravity-free motion is possible and should be started within a few days or as soon as pain permits.

Pain is the accurate measure of safety in evaluating the degree of activity to be permitted at any stage.

Within two weeks symptoms usually subside sufficiently to make pendulum exercises free and fairly comfortable. Gradual progressive resumption of aided active elevation against gravity then should be instituted. This may be done by teaching the patient how to crawl up the wall, and to throw a rope over a door, a shower rod or a pulley and carry out gibbett exercises. Coincident with subsidence of pain and the progressive recovery of function every effort should be directed toward resumption of normal use of the extremity within pain limits. Normal use which calls for synchronized action of the shoulder muscles is much more efficient than any prescribed exercise and should always be started at the earliest possible moment and gradually but progressively increased in scope. As soon as the symptoms permit the sling and swathe should be discarded for progressively increasing periods and then left off altogether except when needed for protection against external forces and when he is asleep. The absence of pain and the recovery of function indicates the time when full normal activities are permissible. The x-rays should be ignored in making this decision.

### Early Postoperative Ambulation

Edwin A. Balcer, M.D., Chicago, Ill. In THE AMERICAN JOURNAL OF SURGERY, LXXIV:4:472, October 1947.

The purpose of this paper is to describe the method used in early postoperative ambulation in 144 cases of varied abdominal operations performed by the author since July 1944.

The most important advantages are decreased pulmonary and circulatory complications which result mainly from basal atelectasis and peripheral venous stasis. Clinically, this fact is supported by lower postoperative temperatures, an earlier return to normal and a lower pulse rate as compared with the strictly confined bed patients; such observations were made and recently reported by Powers, Shafer and Dragstedt. Physiologically, it has been shown by Leithauser that the vital capacity in early ambulatory patients returns to normal in approximately one-half the time required for bed patients, while McMichael and McGibbon have demonstrated that recumbency decreases the total volume of air in the fully expanded lungs as well as the functional residual air. The studies of Smith and Allen revealed that exercise decreases the circulation time in the extremities.

Other advantages include reduced frequency of abdominal distention, absence of asthenia, shortened hospital duration and early restoration to normal activity. Having the patient attend to his personal hygiene and lessening his hospital stay are of great importance psychologically and economically, to the patient as well as to the community having limited hospital beds, nursing personnel or in a time of emergency.

### Patterns of Muscular Activity in Man

Ernst Gellhorn, M.D., Ph.D., Minneapolis. In ARCHIVES OF PHYSICAL MEDICINE, 28:9:574, September 1947.

Electromyograms are recorded by means of surface electrodes from the flexor and extensor carpi radialis and biceps and triceps muscles during flexion and extension of the wrist with the hand pronated and supinated.

It is found that three stages, depending on the degree of stress, may be distinguished. In the first, the activity is confined to the agonist. In the second action potentials appear in the agonist and a muscle of the upper arm according to the following rule: Biceps activity is associated with flexion of the wrist in supination and its extension in pronation, whereas the triceps is activated when the wrist is flexed in pronation or extended in supination. The observation shows that not the degree of activity of the wrist muscles but the type of movement performed determines which of the upper arm muscles is activated. The upper arm muscles thus selectively called into action are shown to be synergic with the agonists. In the third stage, under conditions of considerable stress, action potentials appear also in those muscles which are the antagonists of agonist and synergist, but their characteristic innervation pattern is maintained.

The adaptive character of this innervation pattern and its significance for pathologic conditions are pointed out.

### The Proprioceptive Nervous System

C. Judson Herrick, Chicago, Illinois. In THE JOURNAL OF NERVOUS AND MENTAL DISEASE, 106:3:355, September 1947.

Some of our most fundamental and fruitful conceptions regarding the organization of the nervous system we owe to the insight of Sir Charles Sherrington. Among these is his analysis of the total action system into three classes of performance which he called exteroceptive, interoceptive and proprioceptive. These include all nervous adjustments made to what is going on in the world about and within the body.

The exteroceptive systems comprise responses to external stimulation by overt movement of the body or its members in adjustment to outside events. The interoceptive systems are activated internally and are concerned with the maintenance, propagation and regulation of the bodily apparatus itself. The organs involved are conventionally classified, respectively, as somatic and visceral; and this distinction is recognized as basic in both anatomy and physiology. The proprioceptive systems are ancillary to the others and, as will appear, they occupy a somewhat ambiguous position which should be clarified.

The proprioceptive system as a whole is segregated from the others, not, as the name suggests, in terms of the sensory organs involved, but because this system in the aggregate exerts regulatory control over the action of all skeletal muscles. The criteria employed here are applied in the efferent, not the afferent, side of the arc. This is clear in Sherrington's original formulation of the definition, and it is equally clear that his conceptions of exteroception and interoception also involve recognition of the difference in the type of response evoked.

In Sherrington's classic Silliman Lectures, published in 1906, he summarized the extensive series of experiments which have given us our most exact and comprehensive knowledge of the apparatus of reflex action and how it works. The title which he gave to these lectures, "The Integrative Action of the Nervous System," contains two key words to which attention is here directed.

The exteroceptive systems, viewed in their entirety, are somatic, the interoceptive systems are visceral, and the proprioceptive systems are ancillary to all muscular activity and accordingly may be termed proprius. Sherrington's terms, exteroceptors, interoceptors and proprioceptors, are suitable names for the receptive organs, with the qualification that the same organ may on occasion activate somatic, visceral or proprius responses.

### Nonarticular Rheumatism: "Fibrositis"—Including Its Application To Industry

Francis Bach, D.M., D.Phys. Med., London. In THE BRITISH JOURNAL OF PHYSICAL MEDICINE, 10:5:135, September-October 1947.

*The Pattern of Treatment*

This may be set out in tabular form, as under.

(1) General.—To modify constitutional disorder and raise resistance: rest, psychological and physical; exercise, physical and psychological.

(2) Sociological.—Modification of personal environment: worries—financial, matrimonial and occupational.

(3) Dietetic. — High-calorie and low-calorie diets, salt-free diet, raw fruit, and so forth. Vitamin therapy, specially B, C, D, A and E.

(4) Endocrine therapy. — Thyroid, pituitary, suprarenal, ovarian, testicular; pancreatic (insulin).

(5) Stimulation of reticulo-endothelial system.—Gold, T.A.B., copper, bismuth, and so forth.

(6) Removal or modification of foci of infection.—In nasal sinuses, teeth, tonsils, gall-bladder, duodenum, pelvic organs, urinary tract, and so forth.

(7) Treatment of anemia.—Iron, and liver extracts and other hematopoietics.

(8) Drugs.

(9) Physical measures.

(a) Preventative: remedial exercises, games and other activities; occupational training; general ultraviolet light; baths.

(b) Curative: exercises, including pelvic tilting; heat; cold; diathermy; infra-red; faradism; galvanism.

(c) Massage, general: local transverse friction, and so forth.

(d) Hydrotherapy.

(10) X-Ray treatment (as for capsulitis of the shoulder).

(11) Splints and supports.—For example, aeroplane splints for "rotator cuff" syndrome; corsets for backache; plasters for disc lesions in the back; foot supports.

(12) Special treatments.

(a) Spa: Balneotherapy, dietetic measures, and so forth.

(b) Rehabilitation centers: such as Roffey Park for tired industrial workers.

### Residencies and Assignments in Physical Medicine

In THE BULLETIN OF THE U.S. ARMY MEDICAL DEPT., 7:11:919, November 1947.

Residencies in physical medicine are available at the Walter Reed, Percy Jones, Fitzsimons and Letterman General Hospitals. These residencies are approved by the American Board of Physical Medicine and by the Council on Medical Education and Hospitals of the American Medical Association. Assignments to these residencies are made on January 1 and July 1 each year. In addition to residencies, there exist at present a number of interesting and profitable opportunities for assignment to general hospital physical medicine services.

### Amputation Lessons from the War

Henry H. Kessler, M.D., Newark, N. J. In THE AMERICAN JOURNAL OF SURGERY, LXXIV, 3:307:314, September 1947.

The civilian or military amputee is faced by a triple threat to his scheme of life by the physical and vocational disability caused by the loss of his limb, by his emotional reaction to his disability and by the attitude of the public toward his defect. His adjustment, therefore, is a challenge to the surgeon's clinical judgment, the limbmaker's technical skill and the social conscience of the public. The lack of coordinated effort on the part of these three groups in the past has been responsible for the limited and unsatisfactory adjustments made by many amputees.

This then was the contribution of the war toward the advance of knowledge concerning amputations that only by an integrated plan of action can the amputee be properly served. Such a program includes the five points of psychological preparation, surgery, aftercare of stump, prothesis and training. The war experience points a lesson to those of us who in civilian life are responsible for the rehabilitation of the physically handicapped. In four years that produced 18,000 military amputees 120,000 civilians lost their limbs by accidental injuries and disease. For them no comprehensive program comparable to the military program exists; but if they are to be reassimilated into American life, they must be provided with those facilities. It is the hope of the Office of Vocational Rehabilitation that civilian centers will be established that will follow the satisfactory trend of military amputation centers.

### Low Back Pain

J. D. Paulett, M.R.C.S., Late Captain, R.A.M.C., Medical Registrar, Postgraduate Medical School of London. In THE LANCET, CCLIII, 6469:272:276, August 23, 1947.

Cases of low back pain are commonly divided into the organic, which are labelled fibrositis, rheumatism, lumbago, etc., and psychogenic (Halliday 1935, 1937, Dunbar 1938, Ellerman et al. 1942, Jackson 1943, Boland and Corr 1943, Heaton 1944, Flind and Barber 1945, Le Vay 1947). The question of backache was investigated at a military general hospital in Italy in 1944, in 25 cases in which no organic disease was found. The average of these patients was 32-5 years and their average length of Army service 6 years, showing that some belonged to the Regular or the Territorial Army. In 15, transferred from other medical units, the previous diagnosis was fibrositis in 9 and some form of rheumatism in 6. In those described as "rheumatism," "arthritis," "myalgia," etc., the blood-sedimentation rate (B.S.R.) was normal, there was no fever, and there was no involvement of joints.

An unselected series of 25 cases of low back pain in soldiers without organic disease was investigated. These cases would ordinarily be diagnosed as fibrositis.

The average duration of the disorder was 3½ years, indicating that it was chronic or relapsing.

The pain was uniformly described as a dull ache, acutely sharpened from time to time by sudden jabs arising spontaneously or precipitated by trivial movement.

There was abundant evidence of psychoneurosis or of a personality defect in all cases.

It was impossible to establish any relationship between pain and fibrositic nodules. Evidence is presented which suggests that these nodules are innocent variants of normal muscle tissue.

By the artificial production of lasting low back pain with 0.2 c.cm. of a 10 per cent silver-nitrate solution, it was proved that these psychoneurotic subjects with low back pain were not hypersensitive to painful stimuli, that their spontaneous backache was not due to painful muscle spasm, and that it was not perpetuated by conversion hysteria.

Low back pain may be temporarily abolished by intramuscular injections of procaine or of saline, or by simple dry needling, but not by cutaneous or subcutaneous injections or needling. Pyrexia, either natural or artificial, caused the pain to relapse.

Low back pain has the same clinical and experimental characteristics as had the inframammary pain of Da Costa's syndrome, and both occur in the same type of person. Evidence is presented that these and similar pains occurring elsewhere in such subjects differ only in their sites and represent the same psychosomatic manifestation.

Low backache of the kind described should not be diagnosed as fibrositis but may conveniently be called functional backache.

The mechanism of low back pain remains obscure.

### A Comparative Study of Thrombo-Angiitis Obliterans in White and Negro Patients

H. A. Davis, M.D., F.A.C.S., Los Angeles, Calif., and L. D. King, M.D., New Orleans, La. In SURGERY GYNECOLOGY AND OBSTETRICS, 85:5:602, November 1947.

The outstanding difference between the two groups lay in their response to treatment. Conservative treatment, that is, nonsurgical treatment, was conspicuously less successful in negro than in white patients. The incidence of amputations was significantly higher in negro patients than in white.

The greater lack of cleanliness among negro patients may predispose to infection of the poorly vascularized tissues.

There may be a racial lack of resistance to this disease in the negro. If this were so, the disease should occur more frequently than it does in this race. Indeed, there is some evidence that the opposite may be true, namely, that some degree of racial immunity to Buerger's disease may exist among negroes. Two facts would tend to support this view. First, the disease is less common in negroes. Second, in the present series of cases the incidence of minor amputations was significantly higher in the negro patients than in the white patients when compared with the incidence of major amputations.

### What's New in Peripheral Vascular Disease

Norman E. Freeman, M.D., San Francisco, Calif. In CALIFORNIA MEDICAL JOURNAL, 67:5:280, November 1947.

The field of vascular surgery has expanded so rapidly during the past several years that selection is necessary in reviewing the recent advances. The intention here is to present only a brief summary of the outstanding contributions.

The oscillating bed is of great help at times with patients who have severe arterial obliterative disease, especially if they have continuous rest pain at night. We have previously demonstrated a small but definite increase in blood flow with the oscillating bed. This form of treatment has a great advantage in that it works automatically 24 hours a day and that there are practically no contraindications to its use. It can be used with benefit even in the presence of infection.

### The Problem of Cerebral Palsy

Editorial in THE JOURNAL OF AMERICAN MEDICAL ASSOCIATION, 135:8:513, October 25, 1947.

Recent investigations, however, support the original statement of Little that "the condition may present itself as a congenital affliction or as a result of diseases during infancy. Cerebral palsy is probably in most cases the result of variations in the structure of the brain." The abnormality may vary from the slightest physical handicap to subnormal mentality and severe physical disability with inability to meet the simplest personal needs. The misconception that the mental development of the patient with cerebral palsy is necessarily retarded needs correction. As a matter of fact, mentality is normal in most instances: whatever mental retardation is present is due to a lesion of the area of the brain concerned with the development of intelligence. This occurs in a limited percentage of patients.

The report points out that the evaluation of the extent of physical and mental retardation is difficult even when the diagnosis of the condition is almost self-evident. Evaluation requires determination of the type of qualitative motor defect, the degree of handicap, the parts of the body involved, the amount of involvement, the developmental progress that has been made, the presence of associated or independent defects and the social situation of the patient and the patient's family.

Proper diagnosis of cerebral palsy depends on the training of more medical specialists supplemented by psychologic examiners and specially devised testing and diagnostic procedures which are capable of reaching the real person through the mask of physical handicaps which stand between him and the examiner.

Treatment cannot eradicate the original lesion. Specific treatment can be given for some of the defects, but the patient must be trained rather than treated. Whatever latent resources he possesses can be activated to the fullest extent. Training consists primarily of physical and occupational therapy to help the patient achieve better coordination of movements, to control hyperactive movements and to overcome involuntary movements through relaxation and similar functions.

Specialists estimate that 65 to 70 per cent of patients with cerebral palsy have normal mentality. Improvement in such patients extends from simply acquiring the capacity to dress and feed themselves to complete vocational rehabilitation.

### Use and Abuse of Physical Therapy in the Treatment of Arthritis

Eugene F. Traut, M.D., Chicago, Ill. In THE ILLINOIS MEDICAL JOURNAL, 92:4:238, October 1947.

Often we gain more by emphasizing what not to do than by repeatedly telling what should be done.

The interest of the patient with arthritis in ridding himself of pain, stiffness and deformity as rapidly, thoroughly and cheaply as possible must be kept constantly before us.

At the very first contact the patient must be given a proper perspective of his ailment and its chronicity. He should be told of the ultimately favorable outlook for most cases as justified by experience.

The patient must be prepared to carry on his management long after stopping formal treatment.

Do not fail to prepare the patient for the possibility of having to modify or even radically change methods of treatment already instituted but found not to be effective in his particular case. Failing to tell the patient of such possibilities may convince the patient that you "are just experimenting." There is really much reason for the latter presumption.

As Coulter has so often emphasized, the patient must be told that the physical therapy employed in the office or hospital will be supplemented and followed by prescribed physical measures at home. The formal measures employed in a department of physical therapy are limited by the time of the operators, the roominess of the department and by the patients' purse to such a degree as to really constitute an ineffectual effort against a condition as stubborn as chronic joint disease.

Physical measures in the treatment of rheumatic diseases should not widely deviate from the principles of rest, exercise, heat and massage. Adequate sales resistance must be developed against the agencies who would crowd your space and increase your overhead and depreciation by selling you a multiplicity of machines presented as refinements or improvements on the principles of heat and massage or as new forms of treatment. Particularly insidious is the recommendation to substitute machinery for the personal and manual work of physical therapy.

Physical therapy for arthritis requires, besides the services of a competent operator, a lamp for surface heat, an ultraviolet generator for its tonic effect and for the treatment of soft tissue inflammation, a galvanic generator for iontophoresis and diathermy apparatus for the deep heating of joints, muscles, tendons, ligaments and the periarticular structures. In many instances the heat lamp is preferable to diathermy. One of these forms of heat, usually that from an infra-red generator is used to relax the muscles preliminary to massage. Erythema doses of ultraviolet are useful in the treatment of soft tissue involvement, fibrositis.

Of prime importance is the training of the patient and the patient's family. The active elements of physical medicine such as exercise and the use of heat can be managed by the patient himself.

### The Early Treatment of Poliomyelitis

H. J. Seddon, D.M., F.R.C.S., Nuffield Prof. of Orthopedic Surgery, Oxford. In BRITISH MEDICAL JOURNAL, 4521:321, August 30, 1947.

The essential features in the early treatment of weak and paralyzed muscles in poliomyelitis are as follows:

1. Early determination of the extent and degree of muscle weakness. The extent of the paralysis always should be ascertained at about one week after its onset and then at intervals of two weeks until two months after the onset. Observations at intervals of a month will then be sufficient, and after six months at intervals of two months.

2. Maintenance of the paralyzed part in what one may call a sensible position—the term "physiological position" is hardly apposite—should be undertaken from the first. This is the only reason for the application of splints.

3. In order to prevent stiffness of joints and contracture of muscles the affected part should be put through a full range of movement at least once a day, this treatment being started when pain has subsided or 10 to 14 days after the onset of paralysis, whichever period is the shorter.

4. If pain—either muscle tenderness, pain on stretching a muscle, or true muscle spasm—persists beyond this time, or if it is very severe in the early stages of the disease, relief sometimes may be obtained by the application of heat; and it will then be considerably easier to carry out the movements that are so essential for the maintenance of the limb in a healthy condition.

## Electromyographic Studies on Cats After Section And Suture of the Sciatic Nerve

James G. Golseth and James A. Fizzell, Northwestern Univ., Chicago, Illinois. In THE AMERICAN JOURNAL OF PHYSIOLOGY, 150:4:558, October 1947.

Weddell, Feinstein and Pattle (1943), using concentric needle electrodes (Adrian and Bronk), investigated the electrical activity present in mammalian skeletal muscle (including the human being) after denervation by complete crushing of the nerve supply and during the course of nerve regeneration until functional recovery had taken place. From this and later studies, the following facts relative to reinnervation of muscle were evident: (1) There was a steady decrease in the number of fibrillation action potentials prior to the return of motor unit activity, but a few fibrillation action potentials could be recorded in certain positions in the muscle when no detectable weakness could be recorded clinically. (2) There was a cessation of continuous fibrillation immediately before the appearance of nascent (polyphasic) motor unit action potentials. (3) Once started, the spread of motor unit activity throughout the muscle occurred quite rapidly, requiring only 5 to 6 days in the rabbit, and 12 days in the human being. (4) When no electrical activity whatever could be recorded from a muscle more than a few weeks after nerve injury (complete electrical silence), severe morphological changes were assumed to have taken place, e.g., fibrosis. (5) Complete functional recovery did take place in muscles proven to be fibrillating by electromyography for various time intervals after denervation.

Jasper, employing the monopolar needle electrode, investigated the time course of electrical activity in patients with spontaneously recovering peripheral nerve lesions and also in patients following nerve suture. In this study, he likewise found the first sign of reinnervation to appear in the electromyograph as a decrease or cessation of denervation fibrillation, but in addition, found complete electrical silence in some muscles several weeks before the appearance of motor unit activity. This latter fact he believed showed that the regenerating nerve may arrest fibrillation in the muscles before it has matured sufficiently to conduct any impulses. To this end, he computed the rates of reinnervation for various nerves using both electromyographic silence and return of motor unit activity in muscles as signs of reinnervation.

Because of the several discrepancies and deficiencies mentioned above, an experiment was devised which would permit a statistical study of the electrical activity in the cat's tibialis anticus muscle following section and immediate suture of the sciatic nerve until functional recovery was complete.

### *Summary*

An investigation was made concerning the time course of electrical activity in the tibialis anticus muscles of six cats after section and immediate suture of their nerve supply.

Fibrillation voltages were recorded throughout the lengths of all muscles for various time intervals following denervation. There was a definite but unmeasurable decrease in the number and frequency of fibrillation voltages prior to beginning motor-unit recovery. There was a decrease in the total number of areas showing continuous fibrillation, but there was no cessation of continuous fibrillation in all areas of any one muscle prior to beginning motor-unit recovery.

Electrical silence did not bear a close correlation with either severe morphological changes in muscle or beginning motor-unit recovery. The motor-unit voltages associated with beginning motor-unit recovery were in all instances of polyphasic wave form.

The average duration of the motor-unit-spread interval was 11.66 days. Beginning motor-unit recovery preceded unequivocal functional recovery in all instances. Motor-unit voltages were elicited from all four areas in five muscles and from two areas in the sixth when the muscle showed unequivocal functional recovery. The average duration of the functional delay interval was 12 days.

Complete functional recovery preceded complete electromyographic recovery in all instances. The average rate of reinnervation (using beginning motor-unit recovery as a sign of reinnervation) was 2.61 mm. per day. Complete functional recovery occurred in all muscles even though they were proven by electromyography to be fibrillating for various time intervals after denervation.

## Conservative Treatment of Semilunar Cartilage Injuries of the Knee Joint

Nelson J. Howard, M.D., San Francisco, Calif. In THE AMERICAN JOURNAL OF SURGERY, LXXIV:5:647, November 1947.

In the beginning, our treatment of the patient with semilunar cartilage injury consisted of reduction of the cartilage by manipulative measures, if possible, aspiration of joint fluid if the joint was tense and distended, application of a very heavy voluminous sheet wadding bandage, held by elastic bandaging, and the use of crutches or a cane, advising the patient at the same time to be recumbent as much as possible. Those patients in whom reduction of the slipped menicus could not be carried out by manipulation were placed in traction in bed. It soon became evident that patients so treated absorbed the joint effusion much quicker, the cartilage was less likely to displace after reduction and their convalescence less prolonged. At first, sheet wadding and elastic bandages were used as the only immobilization after traction reduction. This had to be reapplied constantly. A circular unpadded plaster splint, reaching from the ankle to the upper third of the thigh, was found to be the most satisfactory form of immobilization. Slipping and shifting of the splint was prevented by adhesive strips the length of the leg beneath the cast, turned back and incorporated into the plaster above the malleoli.

### *Conclusion*

1. In a small carefully studied series of traumatic knee joint lesions, diagnosed as semilunar cartilage injuries, 82 per cent (forty-six patients) were successfully treated by conservative means; 18 per cent (ten patients) were operated upon.

2. The treatment advised is immediate hospitalization, manipulative or constant adhesive traction reduction of the locked joint, aspiration of the joint, if necessary, and immobilization of the injured knee by circular plaster splint.

3. It is shown that the earlier complete rest of injured joint is enforced, the more likely is the success of the conservative treatment, and conversely, the longer the delay in instituting treatment, the more certain will operative intervention be required.

4. Pathological, anatomic studies of the injured menicus in patients and experimental work on animals reported by many observers provide a sound logical basis for the success of conservative therapy.

### Reconditioning for Tuberculous Patients

O. Leonard Huddleston, M.D., Ph.D., Los Angeles. In ARCHIVES OF PHYSICAL MEDICINE, 28:10:582, October 1947.

It has been pointed out that, by the use of a carefully planned physical therapy program consisting chiefly of therapeutic exercises, physical abnormalities such as faulty posture (scoliosis, drooped shoulder), limited joint motion and restricted movement of the chest may be averted. It is further stated that similar integrated treatment programs are being worked out in Veterans' Hospitals and in at least one Army Hospital which emphasizes the total treatment as complete medical rehabilitation of each patient. It is also believed that the orientation program and the integrated therapy regimen as developed by the Reconditioning Service at the Fitzsimmons General Hospital and the Medical Rehabilitation program of the Veterans' Administration Hospital will aid materially, not only in the medical treatment of pulmonary tuberculosis but in the surgical treatment as well.

### Reduction of the Strength of Muscle Contraction by Application of Moist Heat to the Overlying Skin

Victor E. Hall, M.D., Elba Munoz, A.M., and Barbara Fitch, A.M., Stanford Univ., Calif. In ARCHIVES OF PHYSICAL MEDICINE, 28:8:499, August 1947.

*Summary*

Application of hot moist packs to the skin over the gastrocnemius muscles of etherized cats while contraction was evoked by stimulation of a ventral root often causes a slowly developing reduction in the strength of contraction. Anesthetization of the skin with butesin abolishes this effect. Accordingly, it is concluded that the hot packs stimulate cutaneous receptors which reflexly evoke sympathetic vasoconstriction and reduction in blood flow in the muscle, through which the impairment of contraction strength is brought about. Should a similar reflex effect occur in patients with muscle spasm or hypertonia, treatment with hot moist packs might cause or accentuate unfavorable metabolic conditions in the muscles.

### The Causes and Treatment of Sciatic Pain

Charles Gray, B.Sc., M.B., Ch.B., F.R.C.S., London, England. In SURGERY GYNECOLOGY AND OBSTETRICS, 85:5:431, November 1947.

*Palliative Treatment*

Complete rest in bed. The patient is allowed to lie in whatever position he finds most comfortable. The best plan is to support the patient with pillows in whatever position he obtains most relief from pain.

Radiant heat or diathermy may be applied daily. Massage should not be used. Light massage is useless, and deep massage is too painful.

Stretching the nerve. While the patient is anesthetized, the sciatic nerve is stretched by flexion of the hip, the knee being held in full extension and the ankle in full dorsiflexion. The flexion of the hip should be forced as far as possible, short of dislocating the joint. "Adhesions" may be heard to give way in the thigh during this maneuver.

Manipulation of the spine is performed under pentothal anesthesia. If combined with epidural injection it should be done first, while the relaxation is complete. The method described by Bankart is used.

There are four movements to be carried out, namely:

1. Flexion. The surgeon stands on the right hand side of the supine patient, and places his right arm under the patient's knees. He lifts the legs up, flexing the hips and knees, and carries the knees upward until they are pressed on the patient's chest. The fullest possible flexion of the lumbar spine is thus obtained.

2. Rotation to the left. The patient lies on his right side. The left leg hangs over the side of the table, and the left arm is placed behind the patient's back. The surgeon leans with his right forearm on the left iliac crest, while with his left hand he grasps the left shoulder. A forcible rotary movement of the sacroiliac joint is produced by pulling the iliac crest forward and pushing the shoulder backward.

3. Rotation to the right. The surgeon goes to the other side of the table and the patient is turned on to his left side. The maneuver described above is repeated.

4. Extension. The patient is turned on his face. With his left arm the surgeon lifts the patient's legs until they are almost vertical, and with his right hand presses downward over the lumbar spine, extending it as much as possible.

The manipulation is followed by a course of spinal exercises, radiant heat, and deep massage.

### Physical Therapy in the State Crippled Children's Service

Mary L. McCarthy, Dover, Delaware. In DELAWARE STATE MEDICAL JOURNAL, 19:9:182, September 1947.

In the State Crippled Children's Service of Delaware, the modalities most frequently employed are: thermotherapy, massage, therapeutic exercises and hydrotherapy. Equipment consists of infra-red lamps, a portable mirror, walking aids and Montessori boards. In some situations it becomes necessary to improvise equipment.

When physical therapy is prescribed in crippled children's clinic definite instructions are given by the clinic orthopedic consultant as to the type of treatment to be used. Previous to making the first home visit to a new patient, conferences with the medical social service worker, the nursing supervisor, the nurse in the community and the physical therapist are conducted, so that all aspects of the individual may be considered in treatment. These conferences also provide for a better correlation of the services to the patient.

## Book Reviews

**The Rehabilitation of Speech.** *By Robert West, Professor of Speech Pathology, University of Wisconsin; Lou Kennedy, Associate Professor of Speech, Louisiana State University, and Anna Carr, Clinical Advisor in Speech, State Teachers College, Milwaukee, Wis. Revised edition. Cloth. Price, $5. Pp. 650, with illustrations. Harper and Brothers, 49 East 33rd Street, New York 16, 1947.*

This is a completely revised edition of this book on speech. The entire text with the exception of the last chapter has been completely rewritten and modernized, including much new material resulting from the research of the past decade, especially during the war. Thousands of wounded servicemen with disorders of speech were treated in the rehabilitation centers of the Army and Navy hospitals, and the great strides made there are reflected in this edition.

The material on hearing which is today one of the major problems in the field of speech pathology has been greatly expanded. In addition to the treatment in

the text, Appendix C constitutes virtually a clinical manual in this field. The section on case histories has been expanded so it can be readily used as a unit in the speech correction course, even on the beginning level. The chapter on rehabilitation of the cerebral palsied has been redone and greatly expanded.

A completely new chapter on the rehabilitation of persons with aphasia, written by Dr. Ollie L. Backus, Assistant Professor of Speech, University of Michigan, has been added. Book II, which covers remedial principles, has been completely reorganized and extensively rewritten.

In addition to these major changes, there is much other new material including a careful reworking of the glossary—one of the important features of the volume; also new photographs and other illustrations.

It can be recommended as an authoritative textbook both for college classes and clinical workers. It is a valuable reference book for physical therapists.

**Principles of Occupational Therapy.** *Edited by Helen S. Willard, B.A., O.T.R., Director, Philadelphia School of Occupational Therapy, and Clare S. Spackman, B.S., M.S. in Ed., O.T.R., Director, Curative Workshop, Philadelphia School of Occupational Therapy and Director, Occupational Therapy Department, Hospital of the Graduate School of Medicine, University of Pennsylvania; Assistant Director, Philadelphia School of Occupational Therapy. Cloth. Price, $4.50. Pp. 416, with 46 illustrations. J. B. Lippincott Company, East Washington Square, Philadelphia 5, 1947.*

Great strides have been made in the professional development of occupational therapy since World War II. The importance of its activities in the dynamic programs of rehabilitation established in the hospitals of the Army, Navy and the Veterans Administration has been recognized. The development of interest in physical medicine, which includes both physical and occupational therapy, has given further stimulus to training and practice in this field.

This book presents the whole field of occupational therapy by authoritatively written chapters by its editors in collaboration with nineteen other outstanding leaders who bring together in this volume the principles of their profession. Here are discussed the methods of treatment in relation to the patient with mental disease, physical injuries, cerebral palsy, arthritis, amputations, tuberculosis and visual handicaps. The methods of its use are given for convalescent patients, in general and special hospitals, children's hospitals, military hospitals and the rehabilitation program of the U. S. Veterans Administration.

This is an important contribution and the presentation reflects authority with a breadth and scope unprecedented in previous literature in this field. This can be recommended to physical therapists as a reference book. It should be read by every student and all occupational therapists.

**Kinesiology Handbook: A Study Guide and Laboratory Handbook.** *By M. Gladys Scott, State University of Iowa. Paper. Price, $2. Pp. 148. F. S. Crofts and Company, 101 Fifth Avenue, New York, 1947.*

This book does much to dispel the mysteries of kinesiology. Doctor Scott presents experiments and problems that are different from the stereotyped patterns, and students who are conducted through these experiments will remember their kinesiology.

**Health and Employment.** *By Myra E. Shimberg, Ph.D., New York City, Department of Welfare. Paper. Price, $2.50. Pp. 109. National Council on Rehabilitation, New York, N. Y., 1946.*

This study recommends an examination of the outpatient objectives and procedures as related to health and employment. It teaches a lesson of special research on the part of social welfare agencies. Finally this study presents an examination and exchange of experience of two important groups—the welfare agency and the hospital. It clearly states the problem and points out defects in practices as now applied. It then recommends improvements, the attainment of which is a challenge to all hospital authorities, including trustees, administrator, staff physician and medical social worker as well as to welfare and social agencies under governmental and voluntary auspices.

**Exercise During Convalescence.** *By George T. Stafford, Ed. D., Professor of Physical Education, University of Illinois. Cloth. Price, $4. Pp. 281, with 36 illustrations. A. S. Barnes and Company, 67 West 44th Street, New York 18, 1947.*

Dr. Howard A. Rusk, Consultant, Physical Rehabilitation, Baruch Committee on Physical Medicine, in his foreword says: "In any program of rehabilitation and convalescent care the physical educator plays an important role. He is an integral part of a team of medical specialists, physical therapists, educators, occupational therapists, guidance experts, personal counsellors and social workers. Each member of this team is a specialist but all must work together to treat the whole man in terms of his physical, emotional, vocational, social, personal and family needs."

The author, in consultation with outstanding physicians, developed the exercises given in this book. The author has had thirty years experience in the field of therapeutic exercise including service in the Reconstruction Department of the United States Army in World War I and in the Army Reconditioning and the Navy Rehabilitation programs in World War II. Physical therapists will find this book a valuable guide to the exercise treatment of their convalescent patients.

**Rehabilitation Through Better Nutrition.** *By Tom D. Spies, M.D., from the Department of Internal Medicine, University of Cincinnati College of Medicine. Cloth. Price, $5. Pp. 94, with 50 illustrations. W. B. Saunders Company, West Washington Square, Philadelphia, 1947.*

Nutritive therapy has been used successfully in the fields of prevention and treatment. This monograph is concerned with the role of adequate nutritive therapy in a third field, that of rehabilitation. The author emphasizes that his work in this field has been concerned wholly with the long-term application of the principles of nutritive therapy which would make it possible for the malnourished to regain health and to perform work. By the application of the methods of diagnosis and therapy described in this monograph the physician will be gratified by seeing many patients fully recover their health and return to employment. It is shown that nutritive failure which has taken months and years to develop cannot be overcome quickly. The physician should not consider his patient adequately treated until good health is regained and maintained.

Every physician will appreciate the clarity, the understandable style and the factual background of this book. It is the perfect answer to the many confusing problems in this complex field.

**Massage and Remedial Exercises in Medical and Surgical Conditions.** *By Noel M. Tidy, Member of the Chartered Society of Physiotherapy; T.M.M.G., Sister-in-Charge of the Red Cross Massage Clinic, High Wycombe. Seventh edition. Cloth. Price, $6. Pp. 480, with 190 illustrations. The Williams and Wilkins Company, Mt. Royal and Guilford Aves., Baltimore 2, 1947.*

Only slight alterations have been made in this edition. The author modestly says: "This book makes no claim to originality. It has been my object merely to give an account of various modern methods of treatment, and to indicate, as far as possible, where further information about them can be obtained. At the same time I have personally tested most of these forms of treatment."

The subjects considered are fractures, dislocations, sprains, muscle injuries, wounds and scars, burns, amputations, treatment of the after-effects of injury, stiff joints, diseases of joints, synovial membranes and bones, diseases of the nervous system, diseases of muscle, deformities of the upper and lower extremities, deformities of the spine, constitutional diseases, diseases of the heart, diseases of the blood and lymph-vessels, blood diseases, diseases of respiratory organs and abdominal and pelvic conditions.

Considerably more attention is given to some subjects than to others. The author fortunately provides most details where other books provide the least. For instance, fairly full notes are given on the treatment of fractures, and the approximate dates on which to begin the movements are suggested, guided by her experience.

The photographic illustrations of exercises are excellent. These were taken as moving pictures, and after the whole film had been seen on the screen, the positions which gave the best idea of each exercise were chosen for reproduction. It was thus possible to obtain an effect of movement and activity, as well as, in some cases of actual muscle action, which would have been impossible in ordinary still photographs.

**Handbook on Fractures.** *By Duncan Ever, Jr., M.D., F.A.C.S., Surgeon-in-Chief, Nashville, Chattanooga and St. Louis Railroad; District Surgeon, Louisville and Nashville Railroad; Associate Professor of Surgery, Vanderbilt University School of Medicine; Member of the Southern Surgical Society; Member of the American Association for the Surgery of Trauma; Chairman of the Committee on Fractures of the Medical and Surgical Section of the American Railroad Association; Member of the Committee on Fractures of the American College of Surgeons; Attending Surgeon, St. Thomas Hospital, Nashville, Tenn. In collaboration with Trimble Sharber, A.B., M.D., Attending Surgeon, St. Thomas Hospital, Nashville, Tenn. Cloth. Price, $5. Pp. 263, with 129 illustrations. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1947.*

The methods discussed in this book are the gleanings from more than forty years of trials and errors in the field of fracture work. To lift the onus of decision from those seeking information and to spare them the confusion of lengthy reading the author has given only the best findings of his experience. The usual lengthy discussions of the manner of injury together with the signs and symptoms of fractures are either shortened or waived in favor of emphasis upon details of treatment. The author gives among many true statements one that is most important: "There is no wrong way of treating fractures so long as success is achieved."

This book should be in the library of every physician and surgeon treating fractures as it gives many good points toward reducing the number of fracture cripples.

**Textbook of Human Physiology.** *By William F. Hamilton, Ph.D., Professor of Physiology, University of Georgia School of Medicine. Cloth. Price, $6. Pp. 504, with 121 illustrations. F. A. Davis Company, 1914 Cherry St., Philadelphia 3, 1947.*

This is a textbook new in approach, in design and in the manner of presentation. It is new because there is a need for a concise textbook on human physiology. This book is not ponderous yet completely meets the needs of the curriculum.

Medical students learn more physiology in the clinic and in the hospital than they do in their formal physiology course. Therefore, the function of the formal course should be to build a frame into which may be fitted the information gained later. This book gives the general outline of mechanisms whose normal or abnormal functioning is to be the central theme in the future life of the physician.

It is doubtful that this can best be done by assigning ponderous and detailed texts to neophytes in the subject. Such texts are more properly reference books to the trained physiologist or physician rather than guides to the uninitiated. A book as short as this which attempts to cover so large a field is certain to be dogmatic. In extenuation be it said that every problem has a solution which can be labeled as generally accepted, controversial or unknown. The fact that a teacher and a textbook disagree is often alarming to students. As they develop views of their own, they will come to see that many fields of physiology and medicine are almost wholly a matter of opinion.

This textbook is one that can be recommended to physical therapists. It will make an excellent textbook for courses in physical therapy.

**An Atlas of Anatomy.** *By J. C. Boileau Grant, M.C., M.B., Ch.B., F.R.C.S. (Edin.), Professor of Anatomy in the University of Toronto. Second edition. Cloth. Price, $10. Pp. 496, with 591 illustrations. The Williams and Wilkins Company, Mt. Royal and Guilford Aves., Baltimore 2, 1947.*

This edition is greatly improved and enlarged. Plates are arranged in more convenient sequence and color has been added to many of them. Special new features include complete coverage of hernia, the common anomalies discovered in the dissecting room, illustrations of epiphyses of the limb bones and plates of the cranial nerves. In this edition there are more than two hundred new illustrations, sixteen of the old illustrations having been enlarged.

This edition is recommended to physical therapists.

**Health and Rehabilitation Through Chest Training.** *By Samuel Delano, A.B., M.D., Harvard; formerly Admitting Physician, Boston City Hospital; Physician to Tuberculosis Sanitaria; Physician to New Britain, Connecticut, Tuberculosis Society. Cloth. Price, $2.50. Pp. 142, with illustrations. William-Frederick Press, New York City, 1947.*

The author as a specialist in the diseases of the chest has developed a system of chest training based upon a series of related movements that use the whole chest to effect enlargement of the chest, restore its natural symmetry, and greatly increase the volume of chest air. This volume is a complete description of Doctor Delano's method written in a lucid style for the layman and physician alike. The illustrations are good and one showing the author at eighty-eight years of age with an ideal chest is interesting.

**Peripheral Vascular Diseases (Angiology).** *By Saul S. Samuels, A.M., M.D., Consulting Vascular Surgeon, Long Beach Hospital, Long Beach, New York; Attending Vascular Surgeon, Brooklyn Hospital for the Aged; Chief of the Department of Peripheral Arterial Diseases, Stuyvesant Polyclinic Hospital, New York; Fellow in Surgery, New York Academy of Medicine; Member of Committee on Surgery, New York Diabetes Association. Second edition. Cloth. Price, $2.50. Pp. 85. Oxford University Press, 114 Fifth Avenue, New York 11, 1947.*

It is only recently that the profession has become cognizant of the fact that there are so many hitherto unrecognized details of diagnosis and treatment applicable to peripheral vascular diseases that a new specialty has been spontaneously developed—angiology. Sufficient emphasis is placed upon the principles so that the aspirant in this field shall not be misled into the easy and sometimes lucrative path of the mechanical gadget that purports to cure any and all forms of vascular disease.

As a contribution to this study this book will be of value to the student and graduate physician and it will stimulate further interest in every phase of peripheral vascular disease.

It is a valuable book of reference for physical therapists as it tells definitely where to use physical medicine and what to use.

**Fundamentals of Clinical Neurology.** *By H. Houston Merritt, M.D., Professor of Clinical Neurology, College of Physicians and Surgeons, Columbia University: Chief of Division of Neuropsychiatry, the Montefiore Hospital; Fred A. Mettler, M.D., Ph.S., Associate Professor of Anatomy, College of Physicians and Surgeons, Columbia University, and Tracy Jackson Putnam, M.D., Professor of Neurology and Neurological Surgery, College of Physicians and Surgeons, Columbia University, New York. Cloth. Price, $6. Pp. 289, with 96 illustrations. The Blakiston Company, 1012 Walnut St., Philadelphia 5, 1947.*

This is an exceedingly compact and concise book which deals with the entire gamut of neurology in a confined space. It is intended for practitioners of medicine as a ready source of the fundamentals. The first part of the book consists of 62 pages of description of how to examine the nervous system of which 4 pages are reprints of charts of a neuro-otological examination. The last 200 pages are devoted to anatomic diagnosis which in reality is a series of chapters on such anatomic divisions of the nervous system as peripheral nerves, spinal cord infratentorial brain stem, cerebellum, thalamus and corpus striatium, cerebral cortex and the cerebrospinal fluid. Each chapter contains a brief review of anatomy, circulation, physiology and then a description of clinical entities. To undertake such a coverage is an heroic task for 200 pages and even through the authors are to be complimented upon their conciseness this reviewer is at a loss to see its necessity.

The language and illustrations are clear and simple especially the anatomic pictures. However, a number of defects inherent in the purpose of the book should be pointed out. Accuracy and clarity have been sacrificed for brevity. One may cite two of many examples, (1) sensory alteration in denervated cutaneous area on page 71 and (2) transection of the spinal cord on page 104. This reviewer found it difficult to comprehend the explanations (not to mention inaccuracies) even though he is reasonably familiar with these subjects. The same is true for numerous other sections if read by anyone but an experienced and well-read neurologist. As a clinical reference book it is useless because the clinical descriptions are so brief to consist practically of an elaborate definition in many cases and differential diagnosis consists of naming several conditions. It is unfortunate that the authors were so anxious to be fundamental that they produced something so concise only an experienced person can understand it and he would have no use for it in the form it is presented.

**Physical Medicine in General Practice.** *By William Bierman, M.D., Attending Physical Therapist, Mount Sinai Hospital; Assistant Clinical Professor of Medicine, Columbia University. With a chapter on "Medical Rehabilitation" by Dr. Sidney Licht. Second edition. Cloth. Price, $8. Pp. 686, with 310 illustrations. Paul B. Hoeber, Inc., 49 East 33rd St., New York 16, 1947.*

Essentially practical this book enters fully into the indications, apparatus, methods and the results of all modalities of physical medicine. The new advances in this field are incorporated in this edition, including such subjects as the combination of penicillin and fever therapy in syphilis, the early ambulation in the care of various medical and surgical conditions and medical rehabilitation.

The agents discussed include heat and cold, visible, infra-red and ultraviolet radiation, long and short wave diathermy, the galvanic current, hydrotherapy, climatotherapy, spa therapy, fever therapy, massage, exercise and occupational therapy. These agents are considered individually and their practical applications are discussed in a series of chapters on each disease category. The author, noted for his own researches, clearly indicates the physiologic rationale for each treatment recommended.

Procedures which can be carried out in the physician's own office and in the patient's home are stressed, while institutional measures are fully covered. Contraindications, dangers and pitfalls are carefully pointed out.

This book should be in the library of every general practitioner so he can consult it to better understand when to apply physical measures and when to withhold them because some other therapy is more effective.

**Curare: Its History, Nature, and Clinical Use.** *By A. R. McIntyre, Ph.D., M.D., Professor of Physiology and Pharmacology, College of Medicine, The University of Nebraska. Cloth. Price, $5. Pp. 240, with 25 illustrations. The University of Chicago Press, 5750 Ellis Avenue, Chicago 37, 1947.*

This very excellent monograph is equally important for pharmacologists, physiologists, physical therapists and clinicians. The author has covered the subject of curare in all its aspects, including the early history and the botany of curare. The chemistry has been discussed very adequately. It is very clear all through the book that this has been written by a physiologist. The author gives a very excellent analysis of the large amount of physiological work that has been done with this drug and particularly has been very fortunate in picking out from the immense literature on the physiology of the neuromuscular junction those papers that seem most pertinent to this subject. All through the chapters on the clinical use of curare, the reader is struck by the high scientific level of the discussions. By bringing together literature that is found in many different journals, the author has done a very great service for all those physiologists, physical therapists and clinicians who have any dealings whatsoever with curare.

Monographs like this that take a subject from its biochemical background through physiology into the clinic are a tremendously valuable contribution to our physiological understanding of disease.

**The Cerebral Palsied Child and His Care in the Home.** *By Viola E. Cardwell, R.N., M.A. Paper. Price, $1. Pp 196. Association for the Aid of Crippled Children, 500 Fifth Avenue, New York City, 1947.*

This is a revision of pamphlet I, Cerebral Palsy Series. It has been completely rewritten and enlarged, many new sections have been added and the remaining material has been brought up-to-date. This booklet brings together excerpts or digests from some of the most outstanding material of recent years written by specialists working in different areas of the problem as an overview of present thinking on this condition.

The material included is based on the experience of different workers. Some of it is not accepted by all authorities and much of it is not corroborated since so little research has been done to date. The various sides of the more controversial issues are given and when possible the reasons behind them are given in order to present the complete picture.

It is recommended to those working with cerebral palsied children.

**A Concise Comparative Anatomy.** *By William Henry Atwood, Head of Department of Biology, Milwaukee State Teachers College. Cloth. Price, $3.75. Pp. 413, with 303 illustrations. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1947.*

The material is presented in concise language with the simplest vocabulary consistent with brevity and accuracy. Because both often are facilitated by the use of technical terms, such terms are used where needed. The essential elements of embryology are given in a brief early chapter to unify and conserve the time and energy required to understand the development of the vertebrate organs and systems.

Few students study vertebrate anatomy for its own sake. Usually it is a foundation for embryology, human anatomy or advanced zoological study. Therefore, as each anatomical system is set forth, references to human anatomy appear. This concise text makes no attempt to describe structures fully as in the thesis method. The author correctly states: "A textbook need not be a source book, but it should be a condensed resume of the materials of its province." This book presents and tabulates facts, compares theories and clarifies ambiguities. It can be recommended as an excellent textbook of comparative anatomy.

**Chemistry of Muscular Contraction.** *By A. Szent-Györgyi, Department of Biochemistry, University of Budapest. Cloth. Price, $4.50. Pp. 146, with 49 illustrations. New York Academic Press, Inc., New York City, 1947.*

The work of Szent-Györgyi performed in Europe mostly during the war years has attracted a very large amount of interest all over the world. The present little book contains the author's Cameron prize lecture, held at the University of Edinburgh, on July 23, 1946. Here is an exposition in the English language of the author's original contributions and ideas. The author discusses the two proteins, myosin and ectin, and the combination of the two, ectomyosin. Ectomyosin behaves like a combination of ectin and myosin up to the point when it is brought into contact with adenosine triphosphate, or ATP. It was known that ATP had specific reactions on myosin; however, nowhere as characteristic as the effect of ATP on myosin. The effect of ATP is dependent on the presence of potassium chloride, and while potassium chloride itself causes an ectomyosin suspension precipitate in the form of loose flocculi, in the presence of ATP one obtains a granular precipitate which settles quickly to a small volume at the bottom of the test tube. Szent-Györgyi calls this phenomenon in the presence of ATP, superprecipitation. If ATP is added to one-tenth per cent solution of ectomyosin containing KCl, the fluid becomes turbid and the substance contracts to a small plug, more striking even if one takes an ectomyosin thread and immerses it in ATP solution so that the solution can penetrate very quickly, then nothing will happen for the first few seconds, and then, all of a sudden, shrinking sets in, and within half a minute or so, the thread shrinks to a small bent stick. The desirability of drawing an analogy between these phenomena and the contraction process in muscle is, of course, obvious. The role of adenosine triphosphate is becoming continuously more important because of its fundamental properties in relation to energy changes.

In the case of the muscle, the first splitting of the adenosine triphosphate occurs under the influence of an enzyme. It is of the greatest interest that this enzyme actually is myosin itself.

The author has elaborated on a vast amount of experimental work done in his laboratory and has added his own theories of contraction and excitation. This book should not be missed by anybody interested in physiology of muscular contraction. It is an absolute "must" for a clear understanding of present-day ideas about this complicated subject.

**George Crile: An Autobiography.** *Edited with sidelights by Grace Crile. Two volumes. Cloth. Price, $10. Pp. 624, with illustrations. J. B. Lippincott Company, East Washington Square, Philadelphia 5, 1947.*

Internationally acclaimed as a surgeon and brilliant researcher, particularly in the therapy of shock, Dr. George Crile was one of the dynamic personalities of our time, both in private and professional life. Following his death in 1943, Grace Crile brought together her husband's voluminous autobiographical writings to form this work, adding important sidelights on a distinguished career that included experiences in two wars, travels through Europe and Asia, expeditions to Africa and Alaska and association with notables in both medical and nonmedical fields.

Doctor Crile's life spanned a period of sensational change in the science and practice of medicine, a period in which he himself helped to push back the frontiers, invented many of the tools and procedures used by modern medicine. Doctor Crile performed the first successful amputation under local anesthetic in 1897, later perfecting the nitrous-oxide method of general anethesia. Spurred by the death of his friend, William Lyndman, following an amputation operation from which recovery had apparently begun, he made the study of surgical shock the central theme of his life and conducted experiments in the effects of shock and fear that led ultimately to the goal of shockless operating technic.

He performed the first successful blood transfusion in 1906 and was a motivating force in founding the American College of Surgeons and the American Society of Clinical Surgery. Prior to our entry in World War I, he set up an ambulance service in Paris, organized Red Cross Base Hospital units. He was also a member of the first contingent of the United States Army to serve overseas in the war, establishing a hospital at Rouen in 1917 before any U. S. troops had arrived abroad.

These volumes present the success story of a brilliant surgeon in his ceaseless quest for scientific knowledge. It also gives the self portrait of a discerning man, his failures and triumphs. It is extremely interesting.

**Rehabilitation of the Physically Handicapped.** *By Henry H. Kessler, M.D., Ph.D. Cloth. Price, $3.50. Pp. 274. Columbia University Press, 2960 Broadway, New York 27, 1947.*

Doctor Kessler has been on the staff of the New Jersey Rehabilitation Clinic—the first such government service in the United States—as assistant director from its inception in 1919 and medical director up to 1941, when he was called to active duty as a lieutenant commander in the U. S. N. R. As a captain in the Navy he conducted a rehabilitation program at Mare Island, California, for the war disabled evacuated from the South Pacific. Doctor Kessler is an international consultant on rehabilitation and is also the author of "The Crippled and the Disabled."

This book shows that rehabilitation is a creative process in which the remaining physical and mental capacities of the physically handicapped are realized and developed to their highest efficiency. He shows how, by organized and systematic methods, the physical, mental and vocational powers of the individual can be improved to the point where he can compete with equal opportunity with the so-called nonhandicapped. He emphasizes physical handicaps as being social and economic rather than medical or anthropologic, and points out that public prejudice toward the disabled constitutes the greatest obstacle to rehabilitation.

The various types of disabilities are discussed, the principles which govern physical and social rehabilitation of the handicapped are expounded, and he describes what is being done at the present time for the civilian disabled and the war wounded. This is an informative sourcebook for the social worker and the interested lay worker.

**The Foot and Ankle: Their Injuries, Diseases, Deformities and Disabilities.** *By Philip Lewin, M.D., F.A.C.S., Professor of Bone and Joint Surgery and Acting Head of Department, Northwestern University Medical School; Professor of Orthopedic Surgery, Postgraduate Medical School, Cook County Hospital; Senior Attending Orthopedic Surgeon, Michael Reese Hospital; Consulting Orthopedic Surgeon, Municipal Contagious Disease Hospital, Chicago. Line drawings by Harold Laufman, M.D., F.A.C.S., Associate in Surgery, Northwestern University Medical School. Third edition. Cloth. Price, $11. Pp. 847, with 389 illustrations. Lea & Febiger, Washington Square, Philadelphia 6, 1947.*

This third edition has most extensive revisions and a large amount of new material has been added. It is well organized and the material is presented in an orderly manner beginning with the embryology and anatomy and progressing to clear and concise discussions of the physiology and biomechanics of the foot and ankle. The subject is covered from all of the practical points of view. A section on psychosomatic medicine as it relates to orthopedic conditions is given.

This book is of value to physical therapists as it gives special attention to physical therapy—exercises, massage, contrast baths and sprays, hot paraffin dips, manipulation of the foot and ankle, shoes and their modifications, arch supports and the application of adhesive plaster.

**The Selected Writings of Benjamin Rush.** *Edited by Dagobert D. Runes. Cloth. Price, $5. Pp. 433. Philosophical Library, Inc., 15 East 40th St., New York 16, 1947.*

The interests of Doctor Rush were varied, but their direction was unwaveringly toward the betterment of mankind. His scientific and medical investigations, as well as his social studies and endeavors, were interfused with deeply religious and ethical feeling. In science and medicine he fought among the frontiers of knowledge. In the quest for social and political justice, he fought on the side of the weak.

His writings display an unusually liberal and frequently almost visionary mind. His plea for the abolition of slavery, his appeal for the improvement of the treatment of criminals, his efforts for the abolition of the death penalty, his work in behalf of the mentally deranged are major contributions in the making of a democratic and free America.

We who specialize in physical medicine remember Rush as being the first in America to employ occupational therapy in the treatment of mental ills and to encourage — anticipating modern methods — analytical conversation with the patient.

**Handbook of Psychiatry.** *By Winfred Overholser, A.B., M.D., Sc.D., and Winifred V. Richmond, B.S., A.M., Ph.D. Cloth. Price, $4. Pp. 252. J. B. Lippincott Company, East Washington Square, Philadelphia 5, 1947.*

One can be misled by the title of this book into thinking it is a technical dissertation on psychiatry since the word "handbook" has become associated with such matters by common usage. This is far from the truth. In the words of the authors "We have wished to clarify for the nontechnical reader the substance of mental disease and the proper attitudes toward it." As such, this book accomplishes their purpose.

The plan of the book is quite simple and direct. There are chapters allotted to the usual subjects of causes of mental disorder, methods of treatment, the various clinical entities and finally a discussion of forensic psychiatry. Each subject is covered through its usual categories, the stress being upon the description of the overt manifestations of each type of case. The language is extremely simple and yet not so simple as to be offensive. There has been no attempt to be sensational such as many of its contemporaries have shown; in fact, it reads like a textbook. There has been wisely complete omission of any controversial material. Particularly is it evident that the authors have not yielded to the bait of fanciful dynamic interpretations for the benefit of parlor psychiatrists. There are a few spots considered to be defective by this reviewer, such as stating that arteriosclerosis and high blood pressure are synonymous. The discussion of the various schools of thought in psychiatry is exceedingly brief and leaves too much to the imagination of the amateur. Some of the discussion on epilepsy is vague and open to misinterpretation.

Aside from these minor defects this is a useful book for the intelligent layman or nurse who wishes to familiarize herself with the subject. It can hardly be of value to any physician. The ample reading lists should be helpful.

**Principles of Remedial Exercise Carriage and Working Positions.** *By Svend Clemmesen. Paper. Pp. 109, with illustrations. H. K. Lewis & Company, Ltd., 136 Gower St., London, England, 1947.*

This book gives an account of the theory of exercise therapy, and forms the basis of a positive view of medical employment of gymnastics and other exercise therapy. If now and again the conclusions apparently differ from those of J. Lindhard's works, they are chiefly resting on the unique foundation created by him. When opinions apparently differ, it is especially due to the fact that Lindhard's views often aim direct at educational gymnastics, whereas the author's views rather are determined by medical objects.

**Physical Fitness Workbook: A Manual of Conditioning Exercises and Standards, Tests and Rating Scales for Evaluating Physical Fitness.** *By Thomas Kirk Cureton, Ph.D., Professor of Physical Education, University of Illinois, Urbana, Illinois. Second edition. Paper. Price, $2.50. Pp. 149, with illustrations. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1947.*

This second edition of the "Physical Fitness Workbook" includes illustrations and more complete descriptions of the exercises and conditioning activities. A very important addition is the series of rating scales based on the most modern statistical procedures and in line with the most approved educational use of such scales. Also this volume contains much of value about standards for evaluating physical fitness.

This is a workbook for use at college level. This work has a number of new emphases for those who have seen physical education principally as a program of athletics and recreational sports. The physical fitness classes take on characteristics of a dynamic program in personal health.

**Physikalische Medizin In Diagnostik und Therapie.** *By von Wolfgang Holzer, Professor Dr Med et Dr Ing., Vorstand der Psychiatrisch-Neurologischen Universitatsklinik Graz und des Entwicklungslaboratoriums fur Physikalische Medizin der Nervenklinik in Graz. 5 und 6 Erweiterte Auflage Mit 379 Abbildungen und 125 Zahlentafeln. Price, $9. Wien, Verlag, Wilhelm Maudrich, 1947.*

This is a volume of 769 pages. The book covers a very wide range of subject matter, a good deal of which is not found in books on physical medicine published in this country. For instance, a large section is given over to cardiography, X-ray, electroencephalography and radium therapy. Doctor Holzer holds degrees not only in medicine but also in engineering. One therefore would expect to find the importance of physics stressed. There is an excellent chapter on the physical principles and nerve and muscle physiology. Another excellent chapter presents examples selected for the use of physical medicine on diagnosis and research. There is an unusually good chapter on hydrotherapy, the use of mineral baths and climatotherapy. The subjects of galvanism, faradization, high frequency current, electric shock therapy, massage, and exercise are well discussed both from the viewpoint of theory, research that has been presented, and technic of application. The reader will find many new technics presented. The chapter on massage and exercise are perhaps the only subjects not dealt with adequately.

The book is well written, the subject matter logically presented, and the illustrations are unusually good. Those who read German readily will find this a valuable volume for their library.

**Emotions and Bodily Changes: A Survey of Literature on Psychosomatic Interrelationships, 1910-1945.** *By F. Dunbar. Third Edition. Cloth. Price, $7.50. Pp. 604. Columbia University Press, 2960 Broadway, New York 25, 1947.*

This third edition of this previously well accepted book brings up-to-date (1945) the pertinent literature on psychosomatic relationships. As the author points out, this is not a textbook in psychosomatic medicine but is only an attempt to present in understandable form the trend of thinking and investigation in the field. Since the subject is really an integral part of medicine the author even doubts the wisdom of segregating it as a special branch, for it is apt to become confined to the interest of psychiatrists and lost from the sight of most physicians whom it concerns more directly.

There is an interesting introduction to this volume which gives some idea of the permeation of the concept of the influence of emotion on health and illness in the past few years. The main body of the book is a summary of pertinent literature in reference to each organ system—for example, nervous system, musculature, endocrines. Abstracted articles are representative and of course many have been omitted. The author has purposely avoided making any digest of the material except to point out what she considers errors in interpretation of research. This seems to be one of the major weaknesses of this work. As a source of information and for bibliography the book is unexcelled. However, if it is intended to elucidate the subject of psychosomatic interrelationships to the average physician it is the opinion of this reviewer that it falls far short of such a goal. Fortunately the author has aimed it only at those people who are doing research in the field. There is no doubt that this third edition will earn a very useful even if narrow place in the current literature on psychiatry and medicine, and any investigator in psychosomatics will be deeply indebted to Doctor Dunbar for her laborious and careful task of compiling and categorizing of the literature.

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# Meet Our New Contributors

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